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Fight (Round no.): ____ Room: ____ Stage:

Final Grade: Reviewer Revised after IOC feedback and approved by EC on 2011-11-03

Α	report	should	includ	le:
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• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

Final Grade: Reporter

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.

bon t punish missing answers when r	no questions were posed or not finding shortc	omings if there were none to find.
Rep.: 5	Opp.: SCOVAKIA 5	Rev.: BELARUS 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1 Clear and understandable Appropriate manner	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers Presentation ±1 Clear and understandable Appropriate manner	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers Presentation ±1 ☐ Clear and understandable
☐ Overall impression	Overall impression	☐ Appropriate manner ☐ Overall impression
Reporter ±1 Quality of experimental technique(s) Structure Explanation of formulae and symbols	Opponent ±1 Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in	Reviewer ±1 Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the
 □ Appropriate models, conformity of dimensions □ Slides, on-site experiments, audio, video, as appropriate 	the report Relevance of the questions Contribution to the discussion	reporter and the opponent Draws attention to points missed by the reporter or the opponent
 □ References, proper citations of ideas and input of others □ Novelty of the report □ Contribution to the discussion 		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend

Final Grade: Opponent

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Fight (Round no.):	$\underline{\mathcal{J}}$ Room:	Stage:	Problem no.:	12
Juror: Helle	C, Ka.1	Signature:	Leles	

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.

both countries in this sing answers when no questions were posed or not finding shortcomings if there were none to find.								
Rep.: 5	Opp.: 5	Rev.: 5						
Physics ±3	Physics ±3 +2	Physics ±3						
Correct and relevant physics Scientific approach Validity of conclusions	☐ Scientific approach ☐ Validity of conclusions	Correct and relevant physics Scientific approach						
Accurate answers	Accurate answers	☐ Validity of conclusions ☐ Accurate answers						
Presentation ±1	Presentation ±1	Presentation ±1						
☐ Clear and understandable☐ Appropriate manner☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Clear and understandable Appropriate manner Overall impression						
Reporter ±1								
vehouce II	Opponent ±1	Reviewer ±1						
Quality of experimental technique(s)	Opponent ±1 Response to the reporter's solution	☐ Provides a thorough review of						
Quality of experimental technique(s) Structure	Response to the reporter's	Provides a thorough review of report and discussion Expresses own opinion about						
☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols	Response to the reporter's solution Shows the strong and weak points	Provides a thorough review of report and discussion						
Quality of experimental technique(s) Structure Explanation of formulae and	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in	Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed						
Quality of experimental technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report	Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent						
☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity of dimensions ☐ Slides, on-site experiments, audio.	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent This sheet will be collected by the						
 ☐ Quality of experimental technique(s) ☐ Structure ☐ Explanation of formulae and symbols ☐ Appropriate models, conformity of dimensions ☐ Slides, on-site experiments, audio, video, as appropriate 	Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions	Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent						

Final Grade: Reporter Final Grade: Opponent



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Final Grade: Reporter

Capring Carilli	Fight (Round no.): Roo	m: Stage: Problem no.:
Scoring Guideli	nes Juror: Kent Hogan	Signature:
A report should include:		
• a presentation of the appropriate conception application of appropriate mathematics • 1	ots, theories and principles of the problem • an reasonable experimental technique to gather and experimental findings to draw suitable conclusingable manner	record data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's u appropriate mathematics presented • the c opponent appreciated and highlighted the s	inderstanding of the presented concepts, theories apponent critiqued the experimental technique us	and <i>principles</i> • the opponent understood the ed and questioned the <i>validity</i> of the <i>data</i> • the
A review should show that:		
important aspects (especially the controver	ctive summary of the performances the reporter rsial ones) • the reviewer's personal opinion was in on-trivial and demonstrated, where possible, the red by the reporter and the opponent	n evidence (not just superficial observations) a
 The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each se 	consists of a partial grade for <i>physics, presen</i> each <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . ection and write it in the corresponding box. no questions were posed or not finding shorte	
Rep.: United Kingdon 5 Edward Elcock) 5	Opp.: Slovakia (Matej Badin) 5	Rev.: Belanus (Egeniy aeinit) 5
Physics ±3	Physics ±3	Physics ±3
Correct and relevant physics	Correct and relevant physics	Correct and relevant physics
☐ Scientific approach ☑ Validity of conclusions	☐ Scientific approach	Scientific approach
Accurate answers	☐ Validity of conclusions ☐ Accurate answers	☐ Validity of conclusions
Presentation ±1	Presentation ±1	Accurate answers Presentation ±1
Clear and understandable	☐ Clear and understandable	Clear and understandable
Appropriate manner	Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
」 Structure	Shows the strong and weak points of the report	Expresses own opinion about
Lexplanation of formulae and symbols	Finds shortcomings or errors in the report Focused on heat	topics presented or discussed Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	☐ Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion Dominated/interrupting	by the reporter or the opponent
References, proper citations of ideas and input of others	ver in a very intertuping	This sheet will be collected by
Novelty of the report		archive your partial grades
Contribution to the discussion —		do not bend

Final Grade: Opponent

	•	
	Fight (Round no.):	n: A Stage: 1 Problem no.:
Scoring Guidelin	1es Juror: Kim Freimam	Signature:
A report should include:		
• a presentation of the appropriate concep application of appropriate mathematics • re	ets, theories and principles of the problem • an eleasonable experimental technique to gather and experimental findings to draw suitable conclusion dable manner	record data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's unappropriate mathematics presented • the opponent appreciated and highlighted the st	nderstanding of the presented concepts, theories pponent critiqued the experimental technique use	and <i>principles</i> • the opponent understood the d and questioned the <i>validity</i> of the <i>data</i> • the
A review should show that:		
important aspects (especially the controvers	ctive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in the trivial and demonstrated, where possible, the red to the reporter and the opponent	evidence (not just superficial observations) a
 The reporter, opponent and reviewer of Consider the following suggestions to Select each partial grade from each sec 	consists of a partial grade for <i>physics, presen</i> t each <i>start with 5 points.</i> <i>add</i> to or <i>deduct</i> from the initial <i>5 points.</i> ction and <i>write it</i> in the corresponding box. To questions were posed or not finding shortco	
Rep.:	Opp.: Slovakia 5	Rev.: Belans 5
Physics ±3	Physics ±3	Physics ±3 +/
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	☐ Scientific approach	☐ Scientific approach
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	LJ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
Clear and understandable	Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1 +/
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
] Structure	Shows the strong and weak points	Expresses own opinion about
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both the
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent

Final Grade: Reporter

References, proper citations of ideas and input of others

☐ Contribution to the discussion

☐ Novelty of the report

Final Grade: Opponent

Final Grade: Reviewer

Revised after IOC feedback and approved by EC on 2011-11-03

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This sheet will be collected by the

fight assistant, so we can scan it and archive your partial grades - please

		Fight (Ro	ound no.):	<u> </u>	Room:	14	Stage:	
Scoring (Guidelines	luror:	21644	REGA	UGR	Signatur	a •	14

Problem no.: 12

A report should include:

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for *physics*, *presentation* and for their *specific role*.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.

 Select each partial grade from each section and write it in the corresponding box. Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. 								
Rep.: UL 5 Ed Elcock 5	Opp.: Lovatie 5 Raky Barden 5	Rev.: Edens Enguigolini [5]						
Physics ±3	Physics ±3	Physics ±3						
☐ Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics						
Scientific approach	☐ Scientific approach	☐ Scientific approach						
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions						
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers						
Presentation ±1	Presentation ±1	Presentation ±1						
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable						
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner						
Overall impression	Overall impression	☐ Overall impression						
Reporter ±1	Opponent ±1	Reviewer ±1						
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion						
☐ Structure	☐ Shows the strong and weak points	☐ Expresses own opinion about						
☐ Explanation of formulae and	of the report	topics presented or discussed						
symbols Appropriate models, conformity	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent						
of dimensions	☐ Relevance of the questions	Draws attention to points missed by the reporter or the opponent						
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent						
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and						
☐ Novelty of the report		fight assistant, so we can be a please archive your partial grades – please						
☐ Contribution to the discussion —		do not bend						
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Scoring Guidelines

Fight (Round no.):	$\underline{3}$ Room	:_A_	Stage: _	1	Problem no.:	12
Juror: GEORGE LA	SKH ISHVIL	Signatur	e: <u>/</u> .	24 J	Hay.	

Final Grade: Reviewer
Revised after IOC feedback and approved by EC on 2011-11-03

A	report	should	include:
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• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent *challenged* the *reporter's understanding* of the presented *concepts, theories* and *principles* • the opponent understood the *appropriate mathematics* presented • the opponent *critiqued* the *experimental technique* used and questioned the *validity* of the *data* • the opponent appreciated and highlighted the *strengths and weaknesses* of the report

A review should show that:

Final Grade: Reporter

- the reviewer succeeded in giving an *objective summary* of the performances the *reporter* and *opponent* the reviewer appreciated the *important aspects* (especially the *controversial* ones) the reviewer's *personal opinion* was in evidence (*not* just *superficial observations*) such personal opinions were *informative*, *non-trivial* and demonstrated, where possible, the reviewer's *understanding* of *concepts*, *theories*, *principles* and *appropriate mathematics* used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

Rep.:	Opp.: 5	Rev.: 5
Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions
Presentation ±1	☐ Accurate answers Presentation ±1	☐ Accurate answers Presentation ±1
☐ Clear and understandable☐ Appropriate manner☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
technique(s) Structure	☐ Response to the reporter's solution☐ Shows the strong and weak points of the report	Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed
 Explanation of formulae and symbols Appropriate models, conformity of dimensions 	☐ Finds shortcomings or errors in the report ☐ Relevance of the questions	Relevance of questions to both the reporter and the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others Novelty of the report		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please
Contribution to the discussion		do not bend

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Fight (Round no.): Room:	<u>A</u>	Stage: Z	Problem no.: 4
Juror: K. 22220	Signature	e: <u> </u>	7

Final Grade: Reviewer
Revised after IOC feedback and approved by EC on 2011-11-03

A report should include:

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent *challenged* the *reporter's understanding* of the presented *concepts, theories* and *principles* • the opponent understood the *appropriate mathematics* presented • the opponent *critiqued* the *experimental technique* used and questioned the *validity* of the *data* • the opponent appreciated and highlighted the *strengths and weaknesses* of the report

A review should show that:

- the reviewer succeeded in giving an *objective summary* of the performances the *reporter* and *opponent* the reviewer appreciated the *important aspects* (especially the *controversial* ones) the reviewer's *personal opinion* was in evidence (*not* just *superficial observations*) such personal opinions were *informative*, *non-trivial* and demonstrated, where possible, the reviewer's *understanding* of *concepts*, *theories*, *principles* and *appropriate mathematics* used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following *suggestions* to *add* to or *deduct* from the initial *5 points*.
- Select each partial grade from each section and write it in the corresponding box.

 Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. 									
Rep.: Scovakia 5	Opp.: 5 ELARIS 5	Rev.: 1/2 1/2 5							
Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach							
☐ Validity of conclusions ☐ Accurate answers	☐ Validity of conclusions ☐ Accurate answers	☐ Validity of conclusions ☐ Accurate answers							
Presentation ±1	Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression							
Reporter ±1	Opponent ±1	Reviewer ±1							
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion							
☐ Structure☐ Explanation of formulae and symbols	☐ Shows the strong and weak points of the report ☐ Finds shortcomings or errors in	Expresses own opinion about topics presented or discussed Relevance of questions to both the							
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed by the reporter or the opponent							
☐ Slides, on-site experiments, audio, video, as appropriate ☐ References, proper citations of ideas and input of others	☐ Contribution to the discussion	in he collected by the							
Novelty of the report		fight assistant, so we can scarred archive your partial grades – please							
Contribution to the discussion		do not bend							

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	-	-	-		. 6	and I	-	400	8F 98	450-10	AGBIO.	207	889	ar 20	Will S	Carrier .

Physics ±3

☐ Scientific approach

☐ Accurate answers

Presentation ±1

☐ Validity of conclusions

Clear and understandable

☐ Appropriate manner

☐ Quality of experimental

☐ Appropriate models, conformity

☐ Slides, on-site experiments, audio,

References, proper citations of ideas and input of others

☐ Contribution to the discussion

☐ Overall impression

Reporter ±1

☐ Structure

		1 6
Scoring Guideli	Fight (Round no.): Roor	m: A Stage: 2 Problem no.: 4
Journey Caracin	Juror: Heller	Signature:
A report should include:		
application of appropriate mathematics • r	ots, theories and principles of the problem • an easonable experimental technique to gather and experimental findings to draw suitable conclusionable manner	record data for demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's u appropriate mathematics presented • the o opponent appreciated and highlighted the st	nderstanding of the presented concepts, theories pponent critiqued the experimental technique use	and <i>principles</i> • the opponent understood the ed and questioned the <i>validity</i> of the <i>data</i> • the
A review should show that:		
important aspects (especially the controver.	ctive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in on-trivial and demonstrated, where possible, the red by the reporter and the opponent	a evidence (not just conorficial observations)
The <i>reporter, opponent</i> and <i>reviewer</i> Consider the following <i>suggestions</i> to Select each partial grade from each se	consists of a partial grade for <i>physics, presen</i> each <i>start with 5 points.</i> add to or deduct from the initial <i>5 points.</i> ction and write it in the corresponding box. no questions were posed or not finding shortc	
Rep.: Adoug Def 5	Opp.: Gulla Po 5	Rev.: 6. Galgos 5
hysics ±3 +2	Physics ±3 +1	Physics ±3
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics
Scientific approach	Scientific approach	☐ Scientific approach
J Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions
Accurate answers	☐ Accurate answers	☐ Accurate answers
resentation ± 1 $+1$	Presentation ±1	Presentation ±1
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner
Overall impression	Overall impression	☐ Overall impression
eporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	☐ Shows the strong and weak points	Expresses own opinion about
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both the
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
Novelty of the report		fight assistant, so we can be a please archive your partial grades — please
Contribution to the discussion		do not bend

Final Grade: Reporter

☐ Novelty of the report

Final Grade: Opponent

Final Grade: Reviewer

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Final Grade: Reporter

Final Grade: Opponent

Cooring Caidali	Fight (Round no.): Roo	m: A Stage: 2 Problem no.: 4					
Scoring Guideli	nes Juror: Kent Hogan	Signature:					
application of appropriate mathematics • 1	ots, theories and principles of the problem • an reasonable experimental technique to gather and experimental findings to draw suitable conclusing dable manner	record data for demonstrate the phenomena if					
An opposition should show that: • the opponent challenged the reporter's u appropriate mathematics presented • the o opponent appreciated and highlighted the st	nderstanding of the presented concepts, theories apponent critiqued the experimental technique us	and <i>principles</i> • the opponent understood the ed and questioned the <i>validity</i> of the <i>data</i> • the					
important aspects (especially the controver	ctive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in the reviewer's personal opinion was in the reviewer and the opponent	n evidence (not just superficial observations)					
 The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each ser 	consists of a partial grade for <i>physics, presen</i> each <i>start with 5 points</i> . <i>add</i> to or <i>deduct</i> from the initial <i>5 points</i> . ction and <i>write it</i> in the corresponding box. no questions were posed or not finding shorto						
Rep.: Slovakia 5 (Adam Dej) 5	Opp.: Belarus (Yuliya Peregud) 5	Rev.: Hungary 5 (Gabor Galagezi) 5					
Physics ±3 +2	Physics ±3	Physics ±3					
Correct and relevant physics	☐ Correct and relevant physics	S Correct and relevant physics					
Scientific approach	☐ Scientific approach	☐ Scientific approach					
✓ Validity of conclusions ✓ Accurate answers	☐ Validity of conclusions	☐ Validity of conclusions					
	☐ Accurate answers	☐ Accurate answers					
Presentation ±1	Presentation ±1	Presentation ±1					
☐ Clear and understandable ☐ Appropriate manner	Clear and understandable	☐ Clear and understandable					
Overall impression	Appropriate manner geen should be of the control of	☐ Appropriate manner ☐ Overall impression					
Reporter ±1	Opponent ±1	Reviewer ±1					
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion					
Structure	☐ Shows the strong and weak points	Expresses own opinion about					
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both the					
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent					
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	Draws attention to points missed by the reporter or the opponent					
References, proper citations of ideas and input of others		This sheet will be collected by the					
☐ Novelty of the report		This sheet will be deep can scan it and fight assistant, so we can scan it and archive your partial grades — please					
Contribution to the discussion		do not bend					
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	CO	#	H	A				L	#			H		Ĭ	ı	Parents	
					SEP.	Secret P	4660	Aller III	400	460- 10	WILLIAM TO SERVICE	æ	697	257	88	dissi	Section.

Convince Control	Fight (Round no.): Roor	n: Stage: Problem no.:					
Scoring Guidelin	nes Juror: Kim Freiman	Signature:					
A report should include:		V SAI					
application of appropriate mathematics • r	ots, theories and principles of the problem • an easonable experimental technique to gather and experimental findings to draw suitable conclusionable manner	record data (or demanstrate the nhenomena if					
An opposition should show that: • the opponent challenged the reporter's unappropriate mathematics presented • the opponent appreciated and highlighted the st	nderstanding of the presented concepts, theories pponent critiqued the experimental technique use	and <i>principles</i> • the opponent understood the ed and questioned the <i>validity</i> of the <i>data</i> • the					
A review should show that:							
important aspects (especially the controvers	ctive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in contrivial and demonstrated, where possible, the rid by the reporter and the opponent	evidence (not just superficial observations)					
 The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each set 	consists of a partial grade for <i>physics</i> , <i>presen</i> each <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . ction and <i>write it</i> in the corresponding box. no questions were posed or not finding shortc						
Rep.: Stovalin 5	Opp.: Belanus 5	Rev.: Harring 5					
Physics ±3	Physics ±3	Physics ±3					
Correct and relevant physics	☐ Correct and relevant physics	☐ Correct and relevant physics					
	☐ Scientific approach	☐ Scientific approach					
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions					
Accurate answers	☐ Accurate answers	☐ Accurate answers					
Presentation ±1	Presentation ±1	Presentation ±1					
Clear and understandable	Clear and understandable	☐ Clear and understandable					
Appropriate manner	☐ Appropriate manner	☐ Appropriate manner					
Overall impression	Overall impression	☐ Overall impression					
Reporter ±1	Opponent ±1	Reviewer ±1					
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion					
☐ Structure	Shows the strong and weak points	Expresses own opinion about					
Explanation of formulae and symbols	of the report Finds shortcomings or errors in the report	topics presented or discussed Relevance of questions to both the					
 Appropriate models, conformity of dimensions 	Relevance of the questions	reporter and the opponent Draws attention to points missed					
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent					
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and					
Novelty of the report		fight assistant, so the grades – please archive your partial grades – please					
Contribution to the discussion		do not bend					

Final Grade: Reporter

Final Grade: Opponent

Final Grade: Reviewer

Scoring Guidelines	Fight (Round no.): Room: Stage: Problem no.: 4 Juror: Ricay Reaver Signature:
application of appropriate mathematics • reasonable	s and principles of the problem • an explanation of the observed phenomena • an experimental technique to gather and record data (or demonstrate the phenomena if
complex ideas in an effective and understandable man	al findings to draw suitable conclusions an attempt to communicate difficult or
 the opponent challenged the reporter's understandi 	ng of the presented concepts, theories and principles • the opponent understood the itiqued the experimental technique used and questioned the validity of the data • the d weaknesses of the report
A review should show that: • the reviewer succeeded in giving an chiesting support	
important general lespecially the controversial and	ary of the performances the reporter and opponent • the reviewer appreciated the

appropriate mathematics presented • the or opponent appreciated and highlighted the st	pponent critiqued the experimental technique use	ed and questioned the <i>validity</i> of the <i>data</i> • the
A review should show that:		
• the reviewer succeeded in giving an objectimportant aspects (especially the controver	ctive summary of the performances the reporter isial ones) • the reviewer's personal opinion was in the performance opinion was in the reviewer's personal opinion was in the reporter and the opponent	n evidence (not just summericial about 1)
 The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each se Don't punish missing 'answers' when r 	consists of a partial grade for <i>physics</i> , <i>presen</i> each <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . ction and <i>write it</i> in the corresponding box. no questions were posed or not finding shortcy.	
Rep.: slovatio	Opp.: 5 5	Galor Galgan 5
Physics ±3	Physics ±3	Physics ±3
 □ Correct and relevant physics □ Scientific approach □ Validity of conclusions □ Accurate answers 	☐ Correct and relevant physics☐ Scientific approach☐ Validity of conclusions☐ Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner	Presentation ±1
Overall impression Reporter ±1	Overall impression	Overall impression
Quality of experimental technique(s)	Opponent ±1	Reviewer ±1 Provides a thorough review of report and discussion
☐ Structure ☐ Explanation of formulae and symbols	☐ Shows the strong and weak points of the report ☐ Finds shortcomings or errors in	Expresses own opinion about topics presented or discussed Relevance of questions to both the
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report ☐ Contribution to the discussion		fight assistant, so we archive your partial grades — please do not bend
Final Grade: Reporter	Final Grade: Opponent	Final Crades Davis

Final Grade: Opponent Final Grade: Reviewer Revised after IOC feedback and approved by EC on 2011-11-03

Scoring Guidelines

Fight (Round no.):3	Room: A Stage: 2	Problem no.:
Juror: GEORGE LASKHI'SD	NIL'Signature:	MA

Final Grade: Reviewer Service after IOC feedback and approved by EC on 2011-11-03

A report should include:

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.

 Select each partial grade from each se Don't punish missing 'answers' when r 	ction and <i>write it</i> in the corresponding box. no questions were posed or not finding shortc	omings if there were none to find.
Rep.:5	Opp.:5	Rev.: 5
Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1 Quality of experimental technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate References, proper citations of ideas and input of others	Opponent ±1 Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions Contribution to the discussion	Reviewer ±1 Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent
☐ Novelty of the report☐ Contribution to the discussionFinal Grade: Reporter	Final Grade: Opponent	fight assistant, so we can scan it and fight assistant, so we can scan it and archive your partial grades – please do not bend Final Grade: Reviewer

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Fight (Round no.): Room	: Stage:	Problem no.: /
Juror: K-2Apas	Signature:	and a second

Α	report	should	include:
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• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

• the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent

	——————————————————————————————————————	
 Consider the following suggestions to Select each partial grade from each se 	consists of a partial grade for <i>physics</i> , <i>present</i> each <i>start with 5 points</i> . <i>add</i> to or <i>deduct</i> from the initial <i>5 points</i> . ction and <i>write it</i> in the corresponding box. no questions were posed or not finding shorts.	omings if there were none to find.
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1	Presentation ±1 ○ Clear and understandable Appropriate manner Overall impression
Reporter ±1 Quality of experimental technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, video, as appropriate	Opponent ±1 Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions Contribution to the discussion	Reviewer ±1 Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others Novelty of the report Contribution to the discussion		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please do not bend

Final Grade: Reporter

Final Grade: Opponent





Casina		Fight (Round no.):	Room:	Stage: Probl
Scoring	Guidelines	Juror: Helle	Signature	2:

Α	report	should	include:

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented ◆ the opponent critiqued the experimental technique used and questioned the validity of the data ◆ the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

Final Grade: Reporter

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for *physics*, *presentation* and for their *specific role*.
- The reporter, opponent and reviewer each start with 5 points.

 Consider the following suggestions to add to or deduct from the initial 5 points. Select each partial grade from each section and write it in the corresponding box. Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. 						
Rep.: Oleuik 5	Opp.: Jalya 5	Rev. Janus Breef 5				
Physics ±3	Physics ±3	Physics ±3				
Correct and relevant physics	Correct and relevant physics	☑ Correct and relevant physics				
Scientific approach	☐ Scientific approach	☐ Scientific approach				
☑ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions				
☐ Accurate answers	☐ Accurate answers	☐ Accurate answers				
Presentation ±1	Presentation ±1	Presentation ±1				
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable				
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner				
Overall impression	☐ Overall impression	Overall impression				
Reporter ±1	Opponent ±1	Reviewer ±1 + 1				
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion				
☐ Structure	☐ Shows the strong and weak points					
☐ Explanation of formulae and	of the report	Expresses own opinion about topics presented or discussed				
symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent				
 Appropriate models, conformity of dimensions 	☐ Relevance of the questions	☐ Draws attention to points missed				
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent				
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and				
☐ Novelty of the report		fight assistant, so we con archive your partial grades – please				
Contribution to the discussion		do not bend				

	Frush	rating Golf Ball
	Fight (Round no.):	n: A Stage: 3 Problem no.: 15
Scoring Guideli	nes Juror: Kent Hogan	Signature:
application of appropriate mathematics • i	ots, theories and principles of the problem • an eleasonable experimental technique to gather and experimental findings to draw suitable conclusionable manner	record data (or demonstrate the phenomena if
An opposition should show that: • the opponent challenged the reporter's u appropriate mathematics presented • the o opponent appreciated and highlighted the st	nderstanding of the presented concepts, theories apponent critiqued the experimental technique use	and <i>principles</i> • the opponent understood the d and questioned the <i>validity</i> of the <i>data</i> • the
important aspects (especially the controver	ctive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in on-trivial and demonstrated, where possible, the red by the reporter and the opponent	evidence (not just superficial observations)
 The reporter, opponent and reviewer Consider the following suggestions to Select each partial grade from each se 	consists of a partial grade for <i>physics</i> , <i>present</i> each <i>start with 5 points</i> . add to or deduct from the initial <i>5 points</i> . ction and write it in the corresponding box. no questions were posed or not finding shorter	
Rep.: Belarus 5 (Eugeniy Obinik)	Opp.: Hungary 5 (Georgely Dalya) 5	Rev.: U.K. (Janes Brent) 5
Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1	Presentation ±1 Clear and understandable Appropriate manner Overall impression
Reporter ±1 +	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points of the report	Expresses own opinion about
Explanation of formulae and symbols	Finds shortcomings or errors in	topics presented or discussed Relevance of questions to both the
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent Draws attention to points missed
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the
☐ Novelty of the report		This sheet will be con- fight assistant, so we can scan it and archive your partial grades – please
Contribution to the discussion		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised a	Final Grade: Reviewer fter IOC feedback and approved by EC on 2011-11-03

Scoring Guidelines	Fight (Round no.): Room: A Stage:	S Problem no.:
		9//

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented ● the opponent critiqued the experimental technique used and questioned the validity of the data ● the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent

 The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role. The reporter, opponent and reviewer each start with 5 points. Consider the following suggestions to add to or deduct from the initial 5 points. Select each partial grade from each section and write it in the corresponding box. Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. 							
Rep.: Below 5	Opp.: Hurgan 5	Rev.: 15					
Physics ±3 +2	Physics ±3	Physics ±3					
 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers 	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers					
Presentation ±1	Presentation ±1 ○ ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 + / Clear and understandable Appropriate manner Overall impression					
Reporter ±1	Opponent ±1	Reviewer ±1					
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion					
Structure Explanation of formulae and	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed					
symbols Appropriate models, conformity of dimensions	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent					
of dimensions Slides, on-site experiments, audio, video, as appropriate	☐ Relevance of the questions ☐ Contribution to the discussion	Draws attention to points missed by the reporter or the opponent					
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and					
Novelty of the report		fight assistant, so we carre archive your partial grades – please					
Contribution to the discussion		do not bend					
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Final Grade: Reporter

Final Grade: Opponent



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Fight (Round no.):	S Room:	: Sta	age: <u>3</u>	Problem no.:	15
Juror: Ricay 1	PEGNER.	Signature:	Ma.	19	

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

Final Grade: Reporter

- the reviewer succeeded in giving an *objective summary* of the performances the *reporter* and *opponent* the reviewer appreciated the *important aspects* (especially the *controversial* ones) the reviewer's *personal opinion* was in evidence (*not* just *superficial observations*) such personal opinions were *informative*, *non-trivial* and demonstrated, where possible, the reviewer's *understanding* of *concepts*, *theories*, *principles* and *appropriate mathematics* used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points

 Select each partial grade from each section and write it in the corresponding box. Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. 						
Rep.: Blarus Evguig Oleinih Physics ±3 FA,5	Opp.: Juno ry Gergely Doly a Physics ±3	Rev.: 5				
☐ Correct and relevant physics☐ Scientific approach☐ Validity of conclusions☐ Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers				
Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression				
Reporter ±1 Quality of experimental technique(s)	Opponent ±1 Response to the reporter's solution	Reviewer ±1 Provides a thorough review of report and discussion				
 Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions 	 Shows the strong and weak points of the report Finds shortcomings or errors in the report 	Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent				
Slides, on-site experiments, audio, video, as appropriate	☐ Relevance of the questions ☐ Contribution to the discussion	Draws attention to points missed by the reporter or the opponent This sheet will be collected by the				
 □ References, proper citations of ideas and input of others □ Novelty of the report □ Contribution to the discussion 		This sheet will be common than the fight assistant, so we can scan it and archive your partial grades — please do not bend				

Final Grade: Opponent

Final Grade: Reviewer

Scoring Guidelines

Fight (Round no.):	2	Room:	<u>A</u> _	Stage:	3	Problem	no.:	15
lurar CFNOGE 1	ASUU!	enviti	Signatur	. /	. /	2110		

Final Grade: Reviewer Revised after IOC feedback and approved by EC on 2011-11-03

A report should include:

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.

 Select each partial grade from each section and write it in the corresponding box. Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find. 							
Rep.: 5	Opp.: 5	Rev.: 5					
Physics ±3	Physics ±3	Physics ±3					
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics					
Scientific approach	☐ Scientific approach	☐ Scientific approach					
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions					
Accurate answers	☐ Accurate answers	☐ Accurate answers					
Presentation ±1	Presentation ±1	Presentation ±1					
☐ Clear and understandable	☐ Clear and understandable	☐ Clear and understandable					
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner					
Overall impression	☐ Overall impression	☐ Overall impression					
Reporter ±1	Opponent ±1	Reviewer ±1					
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion					
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about					
☐ Explanation of formulae and	of the report	topics presented or discussed					
symbols Appropriate models, conformity	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent					
of dimensions	Relevance of the questions	☐ Draws attention to points missed					
Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent					
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and					
☐ Novelty of the report		fight assistant, so we com- archive your partial grades – please					
☐ Contribution to the discussion		do not bend					
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer					

Scoring Guideline	25
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Fight (Round	no.): <u> </u>	Room: A	Stage:	Problem no.: _	16
Juror:	24900	Signatur	· 1		de.

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

Final Grade: Reporter

- the reviewer succeeded in giving an *objective summary* of the performances the *reporter* and *opponent* the reviewer appreciated the *important aspects* (especially the *controversial* ones) the reviewer's *personal opinion* was in evidence (*not* just *superficial observations*) such personal opinions were *informative*, *non-trivial* and demonstrated, where possible, the reviewer's *understanding* of *concepts*, *theories*, *principles and appropriate mathematics* used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following *suggestions* to *add* to or *deduct* from the initial *5 points*.
- Select each partial grade from each section and write it in the corresponding box.
- Don't punish missing 'answers' when no questions were posed or not finding shortcomings if there were none to find.

- on a partient this ariswers. Witch the	o questions were posed or not iniding snortco	omings if there were none to find.
Rep.:	Opp.: 5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics☐ Scientific approach☐ Validity of conclusions☐ Accurate answers	 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers 	 ☐ Correct and relevant physics ☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1	Presentation ±1	Presentation ±1
☐ Clear and understandable☐ Appropriate manner☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure Explanation of formulae and	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
symbols	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Appropriate models, conformity of dimensions	Relevance of the questions	Draws attention to points missed by the reporter or the opponent
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
Novelty of the report		fight assistant, so we can archive your partial grades – please
Contribution to the discussion		do not bend

Final Grade: Opponent

Scoring Guidelines	Fight (Round no.): S Room: A Stage: Problem no.: M
appreciation of appropriate mathematics * reasonable e	s and principles of the problem • an explanation of the observed phenomena • an experimental technique to gather and record data (or demonstrate the phenomena if al findings to draw suitable conclusions • an attempt to communicate difficult or ner
An opposition should show that: • the opponent challenged the reporter's understanding	ng of the presented concepts, theories and principles • the opponent understood the

appropriate mathematics presented • the opponent appreciated and highlighted the s	opponent critiqued the experimental technique us reference and weaknesses of the report	s and <i>principles</i> • the opponent understood the sed and questioned the <i>validity</i> of the <i>data</i> • the
A review should show that:		
"" reportant aspects (especially the controver	ective summary of the performances the reporter rsial ones) • the reviewer's personal opinion was on-trivial and demonstrated, where possible, the ed by the reporter and the opponent	in assidance I making a sure of the second
 Consider the following suggestions to Select each partial grade from each se 	add to or deduct from the initial 5 points. ection and write it in the corresponding box. no questions were posed or not finding shorter.	comings if there were none to find.
5	Opp.: Steel 5	Rev.: 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics ☐ Scientific approach	Correct and relevant physics Scientific approach	☐ Correct and relevant physics
☐ Validity of conclusions	☐ Validity of conclusions	☐ Scientific approach ☐ Validity of conclusions
☐ Accurate answers	☐ Accurate answers	Accurate answers
Presentation ±1	Presentation ±1 ☐ Clear and understandable	Presentation ±1 ☐ Clear and understandable
Appropriate manner	☐ Appropriate manner	Appropriate manner
Overall impression	Overall impression	Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
Structure	Shows the strong and weak points	☐ Expresses own opinion about
Explanation of formulae and symbols	of the report Finds shortcomings or errors in	topics presented or discussed
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent
Slides, on-site experiments, audio, video, as appropriate	Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the
☐ Novelty of the report		This sheet will be the fight assistant, so we can scan it and fight assistant, so we can scan it and archive your partial grades — please
☐ Contribution to the discussion (/		do not bend
Final Grade: Reporter	Final Grade: Opponent Revised	Final Grade: Reviewer





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(Gabor Galgocz

Correct and relevant physics

☐ Accurate answers

Presentation ±1

Reporter ±1

☐ Structure

☐ Clear and understandable

(Slides, on-site experiments, audio,

☐ Contribution to the discussion

Physics ±3

Scoring Guideli	right (Round no.): 3 Roo Nes Juror: Kent Hogan	m:A Stage:Problem no.:6
upplication of appropriate mathematics • r	easonable experimental technique to gather and experimental findings to draw suitable conclusi	explanation of the observed phenomena • an record data (or demonstrate the phenomena if ions • an attempt to communicate difficult or
An opposition should show that: • the opponent challenged the reporter's u appropriate mathematics presented • the o opponent appreciated and highlighted the st	nderstanding of the presented concepts, theories pponent critiqued the experimental technique us	and <i>principles</i> • the opponent understood the ed and questioned the <i>validity</i> of the <i>data</i> • the
such personal opinions were informative, no principles and appropriate mathematics use The grade for each of the three teams	consists of a partial grade for <i>physics, presen</i>	in evidence (not just superficial observations) • reviewer's understanding of concepts, theories,
Consider the following suggestions to Select each partial grade from each set	each start with 5 points. add to or deduct from the initial 5 points. ction and write it in the corresponding box. to questions were posed or not finding shorts	
hysics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers	Opp.:	Rev.: Slovakia (Kamila Sauckova) 5 Physics ±3 Correct and relevant physics Scientific approach Validity of conclusions Accurate answers
Clear and understandable Appropriate manner Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Quality of experimental technique(s) Structure Explanation of formulae and symbols Appropriate models, conformity of dimensions Slides, on-site experiments, audio, wideo, as appropriate	Opponent ±1 Response to the reporter's solution Shows the strong and weak points of the report Finds shortcomings or errors in the report Relevance of the questions Contribution to the discussion	Reviewer ±1 Provides a thorough review of report and discussion Expresses own opinion about topics presented or discussed Relevance of questions to both the reporter and the opponent Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others Novelty of the report		This sheet will be collected by the fight assistant, so we can scan it and archive your partial grades – please

Final Grade: Reporter

☐ Novelty of the report

Final Grade: Opponent



Final Grade: Reviewer Revised after IOC feedback and approved by EC on 2011-11-03

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Fight (Round no.):	Room:	4	Stag e : _	4	Problem	no.: _	16
Juror: Kim Fr	Cimann	Signature		B			

Revised after IOC feedback and approved by EC on 2011-11-03

A report should include:

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

- the reviewer succeeded in giving an objective summary of the performances the reporter and opponent the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evidence (not just superficial observations) • such personal opinions were informative, non-trivial and demonstrated, where possible, the reviewer's understanding of concepts, theories, principles and appropriate mathematics used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.

• The reporter, opponent and reviewer					
 Consider the following suggestions to 	add to or deduct from the initial 5 points.				
 Select each partial grade from each sec 	ction and write it in the corresponding box.				
 Don't punish missing 'answers' when n 	o questions were posed or not finding shortco	omings if there were none to find.			
Rep.: Hungam 5	Opp.: 11 5	Rev.: Slotatia 5			
Physics ±3 -2	Physics ±3 +1	Physics ±3			
☐ Correct and relevant physics	Correct and relevant physics				
☐ Scientific approach	☐ Scientific approach	☐ Scientific approach			
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions			
Accurate answers	☐ Accurate answers	☐ Accurate answers			
Presentation ±1	Presentation ±1	Presentation ±1			
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable			
☐ Appropriate manner	Appropriate manner	Appropriate manner			
Overall impression	Overall impression	Overall impression			
[— Overall impression	U Overall impression			
Reporter ±1	Opponent ±1	Reviewer ±1			
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion			
☐ Structure		Expresses own opinion about			
Explanation of formulae and	of the report	topics presented or discussed			
symbols	Finds shortcomings or errors in	Relevance of questions to both the			
Appropriate models, conformity	the report	reporter and the opponent			
of dimensions	Relevance of the questions	☐ Draws attention to points missed			
☐ Slides, on-site experiments, audio, video, as appropriate	☐ Contribution to the discussion	by the reporter or the opponent			
References, proper citations of ideas and input of others		This sheet will be collected by the			
Novelty of the report		This sheet will be con- fight assistant, so we can scan it and archive your partial grades — please			
☐ Contribution to the discussion		do not bend			
Final Grade: Reporter	Final Grade: Opponent	Final Grade: Reviewer			

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Fight (Round no.): _	<u></u>		Stage: 4	_ Problem no.:	16
Juror:	Ricay Se	SEUNEIS	Signature	: <u>ho</u>	<u> </u>	

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent challenged the reporter's understanding of the presented concepts, theories and principles • the opponent understood the appropriate mathematics presented • the opponent critiqued the experimental technique used and questioned the validity of the data • the opponent appreciated and highlighted the strengths and weaknesses of the report

A review should show that:

• the reviewer succeeded in giving an objective summary of the performances the reporter and opponent • the reviewer appreciated the important aspects (especially the controversial ones) • the reviewer's personal opinion was in evid-

such personal opinions were <i>informative</i> , principles and appropriate mathematics u	non-trivial and demonstrated, where possible, the reset by the reporter and the opponent	revidence (not just superficial observations) • reviewer's understanding of concepts, theories,			
 Consider the following suggestions t Select each partial grade from each s 	is consists of a partial grade for <i>physics, presen</i> or each start with 5 points. To add to or deduct from the initial 5 points. The ection and write it in the corresponding box. The no questions were posed or not finding shortc				
Rep.: Jungary 5 gosor galgazi Physics ±3 -2	Opp.: UK Edward Elwih 5	Rev.: Blasus lamba Son chona 5			
	1 1143163 73	Physics ±3			
Correct and relevant physics	Correct and relevant physics	☐ Correct and relevant physics			
Scientific approach	☐ Scientific approach	☐ Scientific approach			
☐ Validity of conclusions	☐ Validity of conclusions	☐ Validity of conclusions			
Accurate answers	☐ Accurate answers	☐ Accurate answers			
Presentation ±1 -0.5	Presentation ±1	Presentation ±1			
Clear and understandable	☐ Clear and understandable	☐ Clear and understandable			
☐ Appropriate manner	☐ Appropriate manner	☐ Appropriate manner			
☐ Overall impression	Overall impression	Overall impression			
Reporter ±1 $-\partial_{\zeta}\overline{\zeta}$	Opponent ±1	Reviewer ±1			
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion			
☐ Structure	☐ Shows the strong and weak points	Expresses own opinion about			
Explanation of formulae and	of the report	topics presented or discussed			
symbols	Finds shortcomings or errors in	Relevance of questions to both the			
Appropriate models, conformity of dimensions	the report Relevance of the questions	reporter and the opponent			
Slides, on-site experiments, audio, video, as appropriate		Draws attention to points missed by the reporter or the opponent			
References, proper citations of ideas and input of others		This sheet will be collected by the			
☐ Novelty of the report		This sheet will be to fight assistant, so we can scan it and archive your partial grades — please			
Contribution to the discussion		do not bend			
- : 10 1 7 1					

Final Grade: Reporter

Final Grade: Opponent

Scoring Guidelines

Fight (Round no.): 3 Room: 4 Stage: 4 Problem no.: 16
Juror: GEORGE LASKHUSHVILOSignature: J. M. J. A. J.

A report should include:

• a presentation of the appropriate concepts, theories and principles of the problem • an explanation of the observed phenomena • an application of appropriate mathematics • reasonable experimental technique to gather and record data (or demonstrate the phenomena if appropriate) • linking of theoretical and experimental findings to draw suitable conclusions • an attempt to communicate difficult or complex ideas in an effective and understandable manner

An opposition should show that:

• the opponent *challenged* the *reporter's understanding* of the presented *concepts, theories* and *principles* • the opponent understood the *appropriate mathematics* presented • the opponent *critiqued* the *experimental technique* used and questioned the *validity* of the *data* • the opponent appreciated and highlighted the *strengths and weaknesses* of the report

A review should show that:

- the reviewer succeeded in giving an *objective summary* of the performances the *reporter* and *opponent* the reviewer appreciated the *important aspects* (especially the *controversial* ones) the reviewer's *personal opinion* was in evidence (*not* just *superficial observations*) such personal opinions were *informative*, *non-trivial* and demonstrated, where possible, the reviewer's *understanding* of *concepts*, *theories*, *principles* and *appropriate mathematics* used by the reporter and the opponent
- The grade for each of the three teams consists of a partial grade for physics, presentation and for their specific role.
- The reporter, opponent and reviewer each start with 5 points.
- Consider the following suggestions to add to or deduct from the initial 5 points.
- Select each partial grade from each section and write it in the corresponding box

 Don't punish missing 'answers' when r 	no questions were posed or not finding shortc	comings if there were none to find.
Rep.:5	Opp.: 5	Rev.: 5
Physics ±3 ☐ Correct and relevant physics ☐ Scientific approach	Physics ±3 Correct and relevant physics	Physics ±3 Correct and relevant physics
☐ Validity of conclusions ☐ Accurate answers	☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers
Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner ☐ Overall impression
Reporter ±1	Opponent ±1	Reviewer ±1
Quality of experimental technique(s)	Response to the reporter's solution	Provides a thorough review of report and discussion
☐ Structure ☐ Explanation of formulae and	Shows the strong and weak points of the report	Expresses own opinion about topics presented or discussed
symbols Appropriate models, conformity of dimensions	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent
Slides, on-site experiments, audio, video, as appropriate	☐ Relevance of the questions ☐ Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
References, proper citations of ideas and input of others		This sheet will be collected by the fight assistant, so we can scan it and
☐ Novelty of the report		fight assistant, so the grades – please archive your partial grades – please
Contribution to the discussion		do not bend
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Final Grade: Reporter

Final Grade: Opponent

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Final Grade: Reviewer

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