		A 11		
Scoring Guidelin		n: A Stage: 4 Problem no.: 16 Signature: Koldlin		
application of appropriate mathematics ● r	ets, theories and principles of the problem • an e easonable experimental technique to gather and a 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 ed and questioned the <i>validity</i> of the <i>data</i> • the		
important aspects (especially the controvers	ctive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in 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, 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. so questions were posed or not finding shortco			
Rep.: Sweden Fredrik Sjovall 5	Opp.: Stovakia Kamiller Saikková 5	Rev.: Bulgara Gergane Borrson 5		
Physics ±3	Physics ±3 +2	Physics ±3 +2		
☐ 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 ☐ 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		
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		

Final Grade: Reporter

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

do not bend

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

Sc	Oľ				q	G	U		d	e	William Co.	Charles o			e	5	,
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Fight (Round no.):	<u>4 </u>	Stage	: Problem no.:	10
Juror:	Kratzer	Signature:	Je Game	

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.

 Select each partial grade from each sec 	add to or deduct from the initial 5 points. Ition and write it in the corresponding box. O questions were posed or not finding shortco	omings if there were none to find.
Rep.: Sweden 5	Opp.: Sombia 5	Rev.: Bilgaria 5
Physics ±3	Physics ±3 +2	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	
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: Reporter	Final Grade: Opponent	Final Grade: Reviewer

	Fight (Round no.): Roor	n: Stage: Problem no.:
Scoring Guidelin	1es Juror: Fing Song	_ Signature: Tey Grin
A remove cherulation leader		
application of appropriate mathematics • re	ts, theories and principles of the problem • an easonable 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 un appropriate mathematics presented • the opponent appreciated and highlighted the st.	nderstanding of the presented concepts, theories oponent critiqued the experimental technique use rengths and weaknesses of the report	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	tive summary of the performances the reporter ial ones) • the reviewer's personal opinion was in n-trivial and demonstrated, where possible, the red d by the reporter and the opponent	n evidence (not just superficial observations) .
 The reporter, opponent and reviewer e Consider the following suggestions to e Select each partial grade from each sec 	consists of a partial grade for <i>physics, present</i> each <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . Ition and <i>write it</i> in the corresponding box. It of questions were posed or not finding shortco	
Rep.: Sweden 5	Opp.: Sleveria 5 Kamila Sověková 5	Rev.: Bulgaria 5
Physics ±3	Physics ±3	Dharia 12
☐ Correct and relevant physics	Correct and relevant physics	Physics ±3
☐ Scientific approach	Scientific approach	☐ Correct and relevant physics ☐ 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	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	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 con- archive your partial grades – please
Contribution to the discussion		do not bend
glenni-transmittensprotos-control-cont	p*************************************	

Final Grade: Opponent

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

Scoring Guidelir		: A Stage: 4 Problem no.: 16 Signature: 190 Mail
application of appropriate mathematics • re	ts, theories and principles of the problem • an e casonable experimental technique to gather and resperimental findings to draw suitable conclusionable manner	ecord 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 str	derstanding of the presented concepts, theories apponent critiqued the experimental technique use rengths and weaknesses of the report	and <i>principles</i> • the opponent understood the dand questioned the <i>validity</i> of the <i>data</i> • the
important aspects (especially the controvers	tive summary of the performances the reporter a ial ones) • the reviewer's personal opinion was in n-trivial and demonstrated, where possible, the re If by the reporter and the opponent	evidence (not just superficial observations) •
The <i>reporter</i> , <i>opponent</i> and <i>reviewer</i> endowing <i>suggestions</i> to a Select each partial grade from each second	consists of a partial grade for <i>physics, present</i> each start with 5 points. Add to or deduct from the initial 5 points. Ition and write it in the corresponding box. It on questions were posed or not finding shortco	
SEP: SWETTEN 5	Opp.: SLOVAK 5	Rev.: BULGARIA 5
hysics ±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
resentation ±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
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 of the report	Expresses own opinion about
Explanation of formulae and symbols Appropriate models, conformity	Finds shortcomings or errors in the report	topics presented or discussed Relevance of questions to both the reporter and the opponent

of dimensions ☐ Slides, on-site experiments, audio, video, as appropriate

References, proper citations of ideas and input of others

☐ Novelty of the report

Final Grade: Reporter

☐ Contribution to the discussion

4

Final Grade: Opponent

☐ Relevance of the questions

☐ Contribution to the discussion

fight assistant, so we can scan it and archive your partial grades - please do not bend

Draws attention to points missed by the reporter or the opponent

This sheet will be collected by the

Final Grade: Reviewer



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Scoring	Guidelines	i

Fight (Round no.): Room:	A Stage: 3 Problem no.: 16
Juror: A. NADOLNY	Signature:

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 sec Don't punish missing 'answers' when n 	ction and write it in the corresponding box. o questions were posed or not finding shortco	omings if there were none to find
Rep.: Sweden 5	Opp.: Slovakia 5	Rev.: Bulgaria 5
Physics ±3 ☐ Correct and relevant physics	Physics ±3 ☐ Correct and relevant physics	Physics ±3 ☐ Correct and relevant physics
☐ Scientific approach ☐ Validity of conclusions ☐ Accurate answers	☐ Scientific approach☐ Validity of conclusions☐ Accurate answers	☐ 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 Appropriate models, conformity	☐ 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		archive your partial grade,
Contribution to the discussion Final Grade: Reporter	Final Grade: Opponent	do not bend Final Grade: Reviewer

Scoring Guidelines

Fight (Round no.): 4 Room:	
Juror: G.LASKHISHVILI	Signature: 1 m Aff m

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 sec Don't punish missing 'answers' when n 	ction and write it in the corresponding box. To questions were posed or not finding shortco	omings if there were none to find.
Rep.: SWEDEN 5	Opp.: SLOVAKIA 5	Rev.: BULGARIA 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 Clear and understandable Appropriate manner	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner	Presentation ±1 ☐ Clear and understandable ☐ Appropriate manner
U 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 are archive your partial grades – please
Contribution to the discussion		do not bend
		· ·

Final Grade: Opponent

Scoring	Gui	deline	25
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Fight (Rou	nd no.):4	Room:	A	_Stage: _	3	_ Problem no.: _	2
Juror:	KABELKA		Signatu	^e:	1/	Wallen.	

• 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.

 Select each partial grade from each sec 	add to or deduct from the initial 5 points. tion and write it in the corresponding box. o questions were posed or not finding shortco	omings if there were none to find.
Rep.: Russie Yuliya Socodium 5	Opp.: Sweden 5	Rev.: Slovakie Kamila Sandková. 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 archive your partial grades – please
Contribution to the discussion		do not bend
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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.): 4 Roo	om: Stage	: <u>3</u> Problem no.: 2
Juror: Halisa Mictae.	Signature:	17. h. l

• 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.

 Select each partial grade from each sec 	each start with 5 points. add to or deduct from the initial 5 points. Ition and write it in the corresponding box. In o questions were posed or not finding shortco	omings if there were none to find.
Rep.: Russia 5	Opp.: Sweden 5	Rev.: Stovakia 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 of dimensions	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	
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
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Final Grade: Reporter Final Grade: Opponent

Final Grade: Reviewer

		Å					
Scoring Guidelin	105	n: A Stage: 3 Problem no.: 2 Signature: Fry Sog					
application of appropriate mathematics • re	ts, theories and principles of the problem • an e easonable 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 rengths and weaknesses of the report	and <i>principles</i> • the opponent understood the data • the					
A review should show that:							
important aspects (especially the controvers	tive summary of the performances the reporter sial ones) • the reviewer's personal opinion was in in-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 sec 	consists of a partial grade for <i>physics</i> , <i>present</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. To questions were posed or not finding shorter Opp.: Sweden 5	omings if there were none to find.					
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 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					
, as appropriate							

Final Grade: Opponent

References, proper citations of ideas and input of others

 \square Contribution to the discussion

☐ Novelty of the report

Final Grade: Reporter

do not bend

This sheet will be collected by the

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

	Fight (Round no.): Room	n: Stage: Problem no.:					
Scoring Guidelir	100	Signature: #GO'Maill					
application of appropriate mathematics • re	ts, theories and principles of the problem • an e easonable experimental technique to gather and r experimental findings to draw suitable conclusio	explanation of the observed phenomena • an record data (or demonstrate the phenomena if					
An opposition should show that: • the opponent challenged the reporter's un	derstanding 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 controvers	tive summary of the performances the reporter a ial ones) • the reviewer's personal opinion was in n-trivial and demonstrated, where possible, the re d by the reporter and the opponent	evidence (not just superficial observations) •					
 The reporter, opponent and reviewer e Consider the following suggestions to e Select each partial grade from each sec 	consists of a partial grade for <i>physics, present</i> each <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . Ition and <i>write it</i> in the corresponding box. To questions were posed or not finding shortco						
Rep.: R JSS1A 5	Opp.: 5	Rev.: SLOVAKIA 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 -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	topics presented or discussed					
☐ Appropriate models, conformity	Finds shortcomings or errors in the report	Relevance of questions to both the reporter and the opponent					
of dimensions	\square 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 archive your partial grades – please					

Final Grade: Reporter

☐ Contribution to the discussion

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.): 4 Room: A Stage: 3 Problem no.: 2

Revised after IOC feedback and approved by EC on 2011

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.

	ction and write it in the corresponding box. To questions were posed or not finding shortc	omings if there were none to find.
Rep.: Russia 5	Opp.: Sweden 5	Rev.: Movakia 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	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 com- archive your partial grades – please
Contribution to the discussion		do not bend
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Scoring Guidelines

Fight (Round no.): Room:	A Stage	: _3_	Problem no.: 2
Juror: G. LASPHISHVILLI	Signature:	10	0410

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 n 	o questions were posed or not finding shortco	omings if there were none to find.					
Rep.: <u>RUSSIA</u> 5	Opp.: <u>Sweden</u> 5	Rev.: SEOVARIA 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	LJ 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	Expresses own opinion about 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 guestions	☐ Draws attention to points missed					
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 fight assistant, so we can scan it and					
		fight assistant, John Masse					
☐ Novelty of the report		archive your partial grades					
☐ Novelty of the report ☐ Contribution to the discussion —	. and the second contraction of the second c	fight assistant, so we archive your partial grades – please do not bend					

Final Grade: Opponent

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Fight (Round no.): Room	: A Stage:	Problem no.: _	<u> ア</u>
Juror: KABELKA	Signature:	Kulla	

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 expensions. Consider the following suggestions to expensions. Select each partial grade from each second 	consists of a partial grade for <i>physics, present</i> each <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . Ition and <i>write it</i> in the corresponding box. To questions were posed or not finding shortco	
Rep.: Bulgara 5	Opp.: Russia Alexey Kindov 5	Rev.: Sweden Majon Poision 5
Physics ±3	Physics ±3	Physics ±3
☐ Correct and relevant physics ☐ Scientific approach	☐ Correct and relevant physics☐ Scientific approach	☐ Correct and relevant physics ☐ 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 of the report	Expresses own opinion about topics presented or discussed
Explanation of formulae and symbols	Finds shortcomings or errors in	
Appropriate models, conformity of dimensions	the report	Relevance of questions to both the reporter and the opponent
	☐ 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 are fight assistant, so we are fight assistant, so we are fight assistant as a fight assistant, so we are fight assistant as a fight assistant as a fight assistant as a fight assistant as a fight as a fi
Contribution to the discussion	- 4	do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer

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Fight (Round no.): _	Room	n: A Stage:	: <u> </u>	Problem no.:	· · · · · · · · · · · · · · · · · · ·
Juror: Pada	Kintzer	Signature:	A.1.	eni -	

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 secDon't punish missing 'answers' when n	tion and <i>write it</i> in the corresponding box. o questions were posed or not finding shortco	omings if there were none to find.
Rep.: 3. 1946. 5	Opp.: Russ 5	Rev.: (herier, 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 con archive your partial grades – please
Contribution to the discussion	-	do not bend

	Fight (Round no.): Rooi	m: 4 Stage: 2 Problem no.: 1
Scoring Guidelin	nps	Stage. Problem no.:
	Juror: Feng Sung	_ Signature:
A report should include:	U U	
 a presentation of the appropriate concepapplication of appropriate mathematics 	ets, theories and principles of the problem • an easonable 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 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	tive summary of the performances the reporter sial ones) • the reviewer's personal opinion was intrivial and demonstrated, where possible, the red by the reporter 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 set 	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. to questions were posed or not finding shorto	
Rep.: Bulgara 5 Svelin	Opp.: Russia 5 Aberey 5	Rev.: Sweden 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	Scientific approach Validity of conclusions	Scientific approach
Accurate answers	Accurate answers	☐ Validity of conclusions ☐ Accurate answers
resentation ±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	the report	reporter and the opponent
of dimensions Slides, on-site experiments, audio.	☐ Relevance of the questions ☐ Contribution to the discussion	Draws attention to points missed by the reporter or the opponent
video, as appropriate References, proper citations of		This sheet will be collected by the
ideas and input of others Novelty of the report		This sheet will be team scan it and fight assistant, so we can scan it and archive your partial grades — please

Final Grade: Opponent

 \square Novelty of the report

Final Grade: Reporter

☐ Contribution to the discussion

Final Grade: Reviewer

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

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	Fight (Round no.): Room	n: A Stage: 2 Problem no.: 7
Scoring Guidelin	nes Juror: PHIL O'NGILC	Signature: 150 Maill
application of appropriate mathematics • 1	ots, theories and principles of the problem • an e reasonable experimental technique to gather and re experimental findings to draw suitable conclusion adable manner	record data (or demonstrate the phenomena if
	nderstanding of the presented concepts, theories opponent critiqued the experimental technique use	
important aspects (especially the controver	ctive summary of the performances the reporter estal ones) • the reviewer's personal opinion was in con-trivial and demonstrated, where possible, the read 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 see 	consists of a partial grade for <i>physics, present</i> each <i>start with 5 points</i> . add to or <i>deduct</i> from the initial <i>5 points</i> . action and <i>write it</i> in the corresponding box. no questions were posed or not finding shortcom.	
Rep.: 13 VLG ARIA 5	Opp.: Russia 5	Rev.: <u>Sweden</u> 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	Presentation ±1 Clear and understandable Appropriate manner Overall impression	Presentation ±1
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 topics presented or discussed
Explanation of formulae and 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☐ Contribution to the discussion		fight assistant, so we are archive your partial grades — please archive your partial grades — please archive your partial grades — please

Final Grade: Opponent

Final Grade: Reporter

Final Grade: Reviewer

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

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						Section 1												- 11

Fight (Round no.): 4 Room: A Stage: 2 Problem no.: 7

Juror: A. NADOLIYY Signature: Molecy

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 sec Don't punish missing 'answers' when n 	ction and <i>write it</i> in the corresponding box. o questions were posed or not finding shortco	omings if there were none to find.
Rep.: Bulgaria 5	Opp.: Russia 5	Rev.: Slovakia Sweden 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	
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 do archive your partial grades — please
☐ Contribution to the discussion	A	do not bend
Final Grade: Reporter 5	Final Grade: Opponent	Final Grade: Reviewer

Scoring Guidelines

Fight (Round no.):	Room:	Stage:	Problem no.:	7
Juror: GEORGE LASKHI	SAViLÍ Signa	ture:	Mm	

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 see Don't punish missing 'answers' when n 	ction and write it in the corresponding box. To questions were posed or not finding shortc	omings if there were none to find.
Rep.: BULGARIA 5	Opp.: RussiA 5	Rev.: Sweden 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 can be archive your partial grades — please
Contribution to the discussion	in the second se	do not bend
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Fight (Round no	o.): <u>4 </u>	Room:	<u> </u>	Stage:	1	Problem no.:	15
Juror: K	ABEL	KA	Signatur	a·	1/	ut lem	

• 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.: Slovakia 5	Opp.: Bulgosia Monchet Molnes 5	Rev.: Russia Leexey Kictor 5								
Physics ±3	Physics ±3 2	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 topics presented or discussed								
☐ Explanation of formulae and	of the report									
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 can archive your partial grades – please								
☐ Contribution to the discussion		do not bend								

Final Grade: Opponent

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Fight (Round no.): _	4 Room:	Stage:	Problem no.:	15
Juror: Medleas	Kralice	Signature:	Aline	

• 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.

 Select each partial grade from each sec 	add to or deduct from the initial 5 points. ction and write it in the corresponding box. o questions were posed or not finding shorte	omings if there were none to find.
Rep.: Stovali.a 5	Opp.: Kalgasia 5	Rev.: \(\frac{1}{1.5\cdot 2} \)
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
(1		

Final Grade: Opponent

	Fight (Round no.): Roor	(5-
Scoring Guideli	100 Juror: Feng Song	n: A Stage: Problem no.: Signature: Fry 3
A report should include:		
• a presentation of the appropriate concept application of appropriate mathematics • r	ets, theories and principles of the problem • an a easonable 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 ed and questioned the <i>validity</i> of the <i>data</i> • the
important aspects (especially the controvers	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	n evidence (not just superficial observations) a
 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</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.: Steventia 5	Opp.: Bulgaria 5 Momche 5	Rev.: Russia 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	☐ 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	Reviewer ±1 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 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

Final Grade: Reporter

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

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Final Grade: Reporter

Cooking Cuidali	Fight (Round no.): 4 Roon	n: 4 Stage: 1 Problem no.: 15
Scoring Guidelin	Juror: PHIL OWEILL	Signature: 190 Uitle
application of appropriate mathematics • re	ets, theories and principles of the problem • an e easonable experimental technique to gather and a experimental findings to draw suitable conclusion	explanation of the observed phenomena • an 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 nn-trivial and demonstrated, where possible, the red d 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 sec 	consists of a partial grade for <i>physics, 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. so questions were posed or not finding shortco	
Rep.: <u>\$ 100 ARIA</u> 5	Opp.: 13066artin 5	Rev.: R V 5 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 of the report	Expresses own opinion about
Explanation of formulae and symbols	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 we ended assistant, so we ended assistant, so we ended assistant assistant assistant assistant assistant assistant, so we ended as a simple assistant, so we ended as a simple assistant as a simple assistant, so we ended as a simple assistant as a simple
Contribution to the discussion	er enterstellen men	do not bend

Final Grade: Opponent Final Grade: Reviewer

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

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						Same?	-	_	_	_			Lap.	-		~	40000	4000

Fight (Round no.): 4 Room	A Stage:	
Juror: A. NADOLNY	Signature:	Meeloly

• 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.: Slovakia 5	Opp.: Bulgaria 5	Rev.: Russia 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	Opponent ±1	Reviewer ±1								
technique(s) Structure Explanation of formulae and	☐ 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								
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 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	This sheet will be collected by the								
☐ Novelty of the report☐ Contribution to the discussion	"	fight assistant, so we can be archive your partial grades — please do not bend								

Final Grade: Opponent

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

Scoring Guidelines

Fight (Round no.): 4	Room:	<u>A</u>	Stage: _	1	Problem no.:	15
Juror: <u>GEORGE LASKHISH</u>	VILI Sig	gnature	e: +c	in Vi	Hen	

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.: SLOVAKIA 5	Opp.: BULGAR 1A 5	Rev.: <u>Russi</u> 4
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	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	☐ 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		archive your partial grades
☐ Contribution to the discussion		do not bend
greate-to-relation and a second superior and		