

**REGULATIONS FOR
THE
US INVITATIONAL YOUNG PHYSICISTS TOURNAMENT
OF**

The United States Association for Young Physicists Tournaments, Inc.

A NOT-FOR-PROFIT CORPORATION
Incorporated in the State of New York

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**ARTICLE I. GENERAL PROCEDURES FOR THE
US INVITATIONAL YOUNG PHYSICISTS TOURNAMENT**

Section 1. US Invitational Young Physicists Tournament. The USAYPT conducts a US Invitational Young Physicists Tournament (USIYPT), usually on the Saturday of the weekend before the President's Day Holiday weekend, each February. The USAYPT will release a National Announcement for the USIYPT no later than August 15 before the following February competition.

Section 2. Tournament Format. The US Invitational Young Physicists Tournament (USIYPT) is a competition among teams of students invited United States and foreign secondary schools testing their ability to solve complicated scientific problems, to present solutions to these problems in a convincing form, and to defend these solutions in scientific discussions called "Physics Fights" (PF) and in "Poster Sessions" (PS). The USIYPT format is adapted from the International Young Physicists' Tournament (IYPT: www.iypt.org).

Section 3. The USIYPT Problems. The USAYPT Board of Directors selects problems for the USIYPT from previous years' IYPT problems and other sources. The USIYPT Problems are posted on the (www.usaypt.org) website no later than August 15 before the following February competition.

Section 4. Tournament Director. The Tournament Director of the USAYPT is responsible for the operation of the US Invitational Young Physicists Tournament.

Section 5. Head of the Local Organizing Committee. The Head of the Local Organizing Committee (LOC) supports the Tournament Director by providing facilities, housing, food, and transportation to/from the nearest airport for competing student and their teachers.

ARTICLE II. ELIGIBILITY AND APPLICATION TO COMPETE

Section 1. Eligible Student Teams. The members of each student team must be registered students at invited US and foreign high schools (secondary). Student teams must consist of at least two and no more than four members. All members must be from the same school. One member will be designated the Team Captain. Invitations are issued at the Board of Director's discretion after the team contacts a member of the Board.

Section 2. Supervisory Teacher(s). Each student team must have one and no more than two supervisory teachers who are members of the USAYPT and teachers at the school where the students are enrolled. A member of the USAYPT may supervise one team for each USIYPT. Two members may supervise one team for each USIYPT. Each supervisory teacher is a collaborative member of his or her team following the USAYPT Requirements and Guidelines for Professional Conduct.

Section 3. Application Packet. Each student, his sponsoring teacher, and the student's parents must complete and forward an application packet to the Secretary, USAYPT by the due date in the National Announcement. See Appendix 1.

ARTICLE III. GENERAL SEQUENCE OF EVENTS

Section 1. Opening Ceremony. All participating teams must attend the Opening Ceremony, held the evening before the USIYPT, if possible. At this ceremony the Team Captains will draw lots for the competition sequence. The Tournament Director will then schedule the Physics Fights (and Semifinal Physics Fights and Poster Sessions if used) based on the number of participating teams, juries, and facilities. Teams unable to attend the Opening Ceremonies, but who have contacted the Tournament Director and confirmed that their travel will have them in place at the beginning of the first Preliminary Round, will have a lot drawn for them.

Section 2. Preliminary Rounds. All competitive rounds before the Semifinals (if used) or Finals are designated as Preliminary Rounds. There are two types:

1. Oral Physics Fight Rounds. A rotating sequence of oral Physics Fight Rounds will require each team to act as a Reporter and as an Opponent (see below).

2. Poster Session. One round may be a poster session where each team presents a third problem solution that was not reported in the oral physics fight rounds.

Section 3. Semifinals and Finals. The top four teams by score (see below) will be the four teams that participate in the Semifinals Physics Fights. The teams that win the Semifinal Physics Fights are the Tournament Finalists and participate in the Finals Physics Fight. The team that wins the Finals Physics Fight is the Tournament Champion.

[Do we discuss the Swartz Trophy for the Poster Session "Winner" here or not?]

ARTICLE IV. SPECIFIC PROCEDURES FOR AN ORAL PHYSICS FIGHT (PRELIMINARY ROUND)

Section 1. The Jury. The Tournament Director will designate and form juries for each oral physics fight (PF). Each jury must have a minimum of four jurors and a Head Juror. Each supervisory teacher must be willing to participate on a jury. However, supervisory teachers will not be permitted to judge physics fights involving students from their own schools. Each juror is responsible for grading the performances of the PF using the USAYPT Juror Forms (see below) and writing a short assessment of the Reporter's and Opponent's presentations.

Section 2. The Head Juror must be familiar with the philosophy, procedures, and regulations of a Physics Fight. The Head Juror for each oral physics fight (PF) is responsible for the operation of the round to include arrangement of the room, timers,

juror forms, etc. Before the PF the Head Juror should have all participants introduce themselves. The Head Juror is responsible for establishing a collegial yet business-like atmosphere throughout the PF.

Section 3. Team Performances in a Physics Fight.

1. The Reporter presents the team's solution to the problem, emphasizing the physical principles that permitted the team to solve the problem, their experimental design, its operation, and their conclusions. The Reporter must then defend their solution against the critique of the Opponent. Standard devices for presentation are computer projection and black/white board. Each juror will grade the Reporter's performance at the conclusion of the PF using the USAYPT Juror Form – Reporter. See Appendix 2.

2. The Opponent questions the Reporter and criticizes the report, pointing to possible inaccuracies and errors in the understanding of the problem, the application of the principles of physics, the experimental design, and in the results and conclusions. The Opponent is responsible for providing a short presentation that must analyze and recognize both the advantages and drawbacks of the solution and presentation of the Reporter. The Opponent is responsible for then leading a discussion with the Reporter that should evolve into a scientific exchange of ideas similar to what one might observe between competing research groups at a scientific conference. During the discussion between the Reporter and the Opponent, the Opponent *must not* present his/her own solution. The Opponent must focus on providing a peer-review critique of the Reporter's solution to the problem in such a way that the scientific community can assess the possible truth and utility of the Reporter's solution. Each juror will grade the Opponent's performance at the conclusion of the PF using the USAYPT Juror Form --- Opponent. See Appendix 3.

3. Assistance to the Reporter or Opponent. During a PF, only one member of a team takes the floor as a Reporter or Opponent. Other members of the team are allowed to make very brief oral or written remarks to their Reporter/Opponent or assist with the technical presentation of the materials and the discussion. During a PF the members of a team may communicate only with each other, excepting the Reporter's and Opponent's formal actions during the Opponent question period and the discussion.

4. Restrictions on Photography, Filming, and use of Cell phones. Supervisory teachers and those associated with an USIYPT Team may only photograph or film their Team's Reporter as he or she presents their solution during a PF. Personnel designated by the Tournament Director to record images and films for promotional purposes may do so throughout any PF and any stage of a PF. Cell phones, pagers, and similar electronic communications devices are prohibited from the room during a PF.

5. The Physics Fight Performance Order.

	time [min]
The Head Juror calls the room to order, reads the opening remarks to everyone present, and asks the teams and jurors to introduce themselves.	
The Head Juror calls the Opponent to challenge the Reporter.	
The Opponent challenges the Reporter Team for the problem.	
The Reporter Team Captain accepts or rejects the challenge.	
The Reporter prepares his/her presentation.	2 mins
Reporter presents the proposed solution to the problem	10 mins
Opponent orally questions the Reporter	2 mins
Opponent prepares his/her presentation	4 mins
The Opponent takes the floor and leads an oral discussion with the Reporter (the Opponent must engage in discussion within 5 minutes of taking the floor)	12 mins
Questions from each jury member (approx 2 min./juror	8 mins
<i>The teams, audience, and timing personnel leave the room</i>	
Jurors write <i>initial</i> comments and scores for Reporter and Opponent	5 mins
Head Juror comments, physics discussion, and questions among the jury	5 mins
After the other jurors have made initial comments on their form but before scores are finalized, the head juror will make one minute's worth of comments about the Reporter's and Opponent's presentations, with an emphasis on the accuracy (or inaccuracy) of the physics involved. The head juror will then solicit questions and discussion from the other jurors regarding the physics content of the presentations. If there is disagreement among the jury on a factual point of physics, the head juror may attempt to resolve such disagreement. The head juror may rule on any issue not explicitly covered in these regulations.	
Jurors finalize their scores and complete their forms. Forms are given to the Head Juror. Scores are NOT discussed with participants. Head Juror delivers forms to the Tournament Director or designated representative.	

Elapsed Time: 50 mins

**ARTICLE V. SPECIFIC PROCEDURES FOR A
POSTER SESSION**

Section 1. General Instructions. The Tournament Director may or may not organize a USIYPT using a poster session. If the session is used, each team will create posters presenting their solution to one of the USIYPT problems that was not reported in that team's preliminary PFs at that point in the Tournament. The LOC will provide poster boards for each team to hang up to sixteen 8.5" x 11" pages. However, printing facilities will not be available – teams must bring printed copies of their presentation slides for all of their solutions to the tournament.

Section 2. Non-Oral Inspection. After the posters have been created, they will be available for jurors' inspection without any team member present. A jury of at least three members will judge each poster using the USAYPT Juror Form – Poster. See Appendix 4.

[Why are there at least 3 jurors in Section 2 and at least 2 jurors in Section 3?]

Section 3. Oral Inspection. After the non-oral inspection, one team member will stand by each poster to defend the solution to the juror(s). A mini-jury of at least two jurors will evaluate the team member's oral defense for five to ten minutes. During the question and answer session the jurors will ask questions and engage the team member in discussion of the team's solution to the problem.

**ARTICLE VI. PROBLEM CHALLENGE, REJECTION,
AND PRESENTATION**

Section 1. Preliminary Round Oral Physics Fights. The Opponent may challenge the Reporter on any problem except a problem that:

- a. was presented by the Reporter earlier
- b. was rejected by the Reporter earlier
- c. was opposed by the Opponent earlier
- d. was presented by the Opponent earlier

If there is only one problem left to challenge, the banned problems in "d" and "c" above are successively removed, in that order.

During preliminary rounds, the Reporter may reject the challenge of one problem without penalty. A team may not reject more than one problem in the preliminary round without being disqualified from the Tournament.

Section 2. Poster Session. If the Tournament has a poster session, the problem presented in the poster session must not have been reported by the team in the preliminary rounds before the session is scheduled.

Section 3. Multiple Presentations by a Single Team Member. No single team member may fill all preliminary round roles of reporter, opponent, and poster defender.

ARTICLE VII. GRADING

Section 1. Juror Grades. After each PF (Preliminary, Semifinals, or Finals) the jury grades the teams, taking into account all presentations of the members of the team, questions and answers to the questions, and participation in the discussion. Each jury member fills out a form on which he/she scores each aspect of each team's presentation, and on which she should write comments justifying their score. Each juror's final score will be on a scale of 1 to 10, quantized in half-integer units. A juror may adjust his or her score after hearing the Head Juror's remarks; however, each juror should consider himself an independent evaluator who may agree or disagree with other jurors.

Each juror who views and discusses a poster will fill out a ballot with both a score and a written justification of that score. Once again, the juror's final score will be on a scale of 1-10, quantized in half-integer units.

Section 2. Compilation of Team Scores. After the PF or PS is complete, juror forms are given the Tournament Director, who compiles the scores for each participant. The mean of the highest and lowest scores is counted as one score that is added to the remaining scores to calculate the team's *raw score* for the round. The raw score is multiplied by different coefficients depending on the role the team played: 3.0 for the Reporter, 2.0 for the opponent, 2.0 for the poster. A team's *tournament score* is the sum of these multiplications:

$$\begin{array}{r} 3.0 \times \text{reporter raw score} \\ + \quad 2.0 \times \text{opponent raw score} \\ + \quad \underline{2.0 \times \text{poster raw score (if a poster session is used)}} \\ \hline \text{Tournament score} \end{array} \quad [\text{Scores will be rounded to one decimal place.}]$$

Section 3. Security of Team Scores. Team scores and juror forms are not released to participants during the tournament (see below for Finals procedures). All jury forms from a team's presentations during the Preliminary and Semifinals (if used) PFs and Poster Session (if used) will be given in a folder to the supervisory teacher at the Closing Ceremony.

ARTICLE VIII. THE FINALS PHYSICS FIGHT

Section 1. Qualifying for the Semifinals (*if used*). The four teams with the highest tournament scores qualify for the Semifinals Physics Fights. When teams have equal tournament scores (rounded to one decimal place), the team with the best median raw score from the preliminary rounds advances. The second tiebreaker will be the team with the highest raw score in a single preliminary round. If these methods do not break the tie, a coin flip will determine which team advances.

Section 2. Semifinal Groups (*if used*). The four teams that qualify for the Semifinals participate as follows. The Group A Semifinal Physics Fight will have the teams with the highest and lowest tournament scores. The Group B Semifinal Physics Fight will have the teams with the other two teams.

Section 3. Problem Choice for the Semifinals (*if used*). Within five minutes after the announcement of the Semifinalist Groups, the teams participating in the Semifinals choose and announce the problems they will report. All current USIYPT problems, including those presented earlier in the Preliminary Rounds, may be presented. The highest scoring team in each Group after the preliminary rounds selects their problem to report. Then, the second highest scoring team in each Group selects a different problem to report.

Section 4. Qualifying for the Finals. The two teams with the highest tournament scores qualify for the Finals Physics Fight if no Semifinals are used. The two teams that win each Semifinal qualify for the Finals when Semifinals are used. When teams have equal tournament scores (rounded to one decimal place), the team with the best median raw score from the preliminary rounds advances. The second tiebreaker will be the team with the highest raw score in a single preliminary round. If these methods do not break the tie, a coin flip will determine which team advances.

Section 5. Problem Choice for the Finals. Within five minutes after the announcement of the Finalists, the teams participating in the Finals choose and announce the problems they will report. If there are no Semifinals, then all current USIYPT problems, including those presented earlier in the Preliminary Rounds, may be presented. The highest scoring team after the preliminary rounds selects their problem to report. Then, the second highest scoring team selects a different problem to report. If there are Semifinals, then the teams may present any problem except the one presented in the Semifinal round.

Section 6. Order of Presentation in the Finals. The order of presentation in the final, and thus the order of problem selection for the final, is also determined by the tournament score and the tiebreaking methods in Section 4 above. The highest scoring team becomes the first Reporter and the second highest scoring team becomes the Opponent. After that PF the teams switch roles.

Section 7. Semifinals and Finals Physics Fight Roles, Assistance, and Order Changes. All provisions of the PF roles, assistance, and performance order listed in Article IV above are retained in the Semifinals and Finals PF except:

1. There is no challenge of the Reporter by the Opponent as each team is permitted to select the problem they present. The first two minutes are devoted to Reporter preparation.
2. No single team member in the Semifinals (if used) and Finals may fill both roles of reporter and opponent.
3. After the fight, the jury leaves the room to complete their grading forms.
4. After both teams have reported and opposed, and the Tournament Director has tabulated the jury scores, the jury will reassemble in the Finals room and reveal their scores to the Finals teams and the audience when directed by the Tournament Director by raising a card marked with their score above their heads. The Tournament Director will then announce the Tournament Champion.

ARTICLE IX. AWARDS

Section 1. Champion. The USIYPT Champion is the winner of the Finals PF. The USIYPT Champion is awarded the traveling USIYPT Championship Trophy and is responsible for returning the trophy at the next USIYPT.

Section 2. Finalist. The non-winning participant in the final PF is designated a USIYPT Finalist. The USIYPT Finalist is awarded the traveling USIYPT Finalist Trophy and is responsible for returning the trophy at the next USIYPT.

Section 3. Second Place. All other USIYPT teams finish in Third Place and receive Certificates of Participation.

[Talk about Swartz Trophy winner?]

DRAFT: 9 DECEMBER 2011

USAYPT2009 US Invitational Young Physicist Tournament Application

Instructions

(The use of "X" below and the following pages indicates Tournament-specific information that will be listed on the most current instructions should be used from www.usaypt.org)

1. The school team will be evaluated by a jury of professional science educators and former international team members using the rubrics published on the USAYPT web page. The team will participate at the USAYPT US Invitational Young Physicists Tournament, on Friday (if used) and Saturday, X February XXXX, at XXXX (school or host institution), XX (city/town), XX (state).
2. As part of that competition, ALL students, their teacher-advisor, and the student's parent/guardian must complete and sign the attached written Application, which consists of 4 pages. The application consists of general information as well as specific commitments that must be initialed by the student, their teacher-advisor, and the student's parent/guardian. ***This application packet must be received by the Secretary, USAYPT, PO Box 508, Rye NY 10580 not later than Friday, X (date) XXX (month) XXXX (year).***
3. Participants in the USIYPT will be assessed a registration fee of \$XX per person to cover local transportation, food, and similar expenses ***and*** will be assessed a \$XX per day per person cost for housing, if applicable. The student and their teacher-advisor are responsible for transportation and incidental expenses to and from the tournament location as well as suitable insurance throughout the trips.

(The use of "X" above and in the following pages indicates Tournament-specific information that will be listed on the most current instructions should be used from www.usaypt.org)

DRAFT: 9 DECEMBER 2011

Date: _____

TO: Tournament Director, USAYPT

SUBJECT: Application to Compete in the USAYPT XXXX (*year*)
US Invitational Young Physicists Tournament
XXXX (*school or institution*)
X (*date(s)*) XXX (*month*) XXXX (*year*)

Attached are the required information, commitment, and release forms that constitute an application to compete in the USAYPT XXXX (*year*) US Invitational Young Physicists Tournament.

Printed Name of the School _____

Printed Name of the Teacher-Advisor #1 _____

Signature of Teacher-Advisor #1 _____

Printed Name of the Teacher-Advisor #2 _____

Signature of Teacher-Advisor #2 _____

Printed Name of the Student _____

Signature of Student _____

Printed Name of the
Student's Parent/Guardian _____

Signature of the
Student's Parent/Guardian _____

DRAFT: 9 DECEMBER 2011

USAYPTXXXX US Invitational Young Physicists Tournament Application

PART ONE: General Information:

1. Complete name of student: _____
(all names to include middle, and/or initials)

2. Birth date and place: _____

3. Present secondary school and its address:

4. Expected year of graduation: _____

5. Name, school phone number, and email address of the student's teacher-advisor:

6. Parents names:

7. Home address:

8. Home phone number(s) and email address(es):

DRAFT: 9 DECEMBER 2011

USAYPT XXXX US Invitational Young Physicists Tournament Application

**PART TWO: Participation and Commitment Agreement, Release, and Covenant
Not to Sue**

United States Association for Young Physicists Tournaments, Inc.

_____ ("Student"), _____ ("Teacher"), and

_____ ("Parent/Guardian of Student")

recognize that:

Student and Teacher are voluntarily competing in a competition sponsored by the United States Association for Young Physicists Tournaments, Inc. (USAYPT);

_____ (Student initials)
_____ (Teacher initials)
_____ (Parent initials)

Student and Teacher have read and will comply with the provisions of the latest version of the USAYPT Requirements and Guidelines for Professional Conduct posted on the USAYPT website.

_____ (Student initials)
_____ (Teacher initials)

Student and Teacher give permission for photographs taken of them in such competition and possible subsequent USAYPT events and their names and schools to be used on USAYPT website pages and promotional literature;

_____ (Student initials)
_____ (Teacher initials)
_____ (Parent initials)

All possible circumstances cannot be foreseen in which Student and/or Teacher could be harmed or exposed to harm in connection with Student's and Teacher's travel to/from and participation in such team training sessions and in such Invitational Tournament.

_____ (Student initials)
_____ (Teacher initials)
_____ (Parent initials)

DRAFT: 9 DECEMBER 2011

USAYPT XXXX US Invitational Young Physicists Tournament Application

Accordingly, we knowingly and voluntarily release and forever discharge, both jointly and severally, USAYPT and each of their current or former officers, directors, representatives, agents, faculty, staff, designated chaperones, teacher volunteers, parent volunteers, student participants, and attorneys in their official and individual capacities (hereinafter "Releasees"), from any and all responsibility for damage, illness, accidents, injury, death or loss suffered by Student at any USAYPT or USIYPTXXXX events, programs, or activities sponsored by Releasees.

We also agree, on behalf of ourselves and as parents or teachers, on behalf of Student, not to bring any legal action or proceeding against Releasees for any damage, illness, accidents, injury, death or loss, which may arise out of , on account of, or in connection with the Student's participation in USAYPT activities.

Without limiting the generality of the foregoing, we acknowledge and covenant that we have knowingly and voluntarily relinquished, waived, an forever released any and all remedies against Releasees which might otherwise be available to us, or Student, including, without limitation, claims for contract or tort damages of any type, back pay, emotional distress or pain and suffering damages, punitive or exemplary damages, medical costs or expenses of any kind, or recovery of attorney's fees, costs or expenses of any kind, and from all acts of passive or active negligence on the part of Releasees. We understand that this release and covenant not to sue does not apply to any claims that we may have in the future for fraud, gross negligence, or intentional acts.

We agree and acknowledge that we have carefully reviewed, studied, and thought over the terms of this Agreement and that all questions concerning this Agreement have been answered to our satisfaction. We also acknowledge that no promise or inducement to enter into and execute this Agreement has been offered or made except as set forth herein.

We understand and agree that the provisions of this Agreement are severable, and should any provision be found invalid or unenforceable, the other provisions shall remain fully valid and enforceable. This Agreement will be governed by New York law.

In addition to Student and Teacher, ALL Parents and guardians of Student must sign this Agreement. The individuals signing below constitute all such parents and/or guardians:

Signature of Student: _____ Date: _____

Signature of Teacher: _____ Date: _____

Signature of ALL Parents/Guardians:

_____ Date: _____
_____ Date: _____

<i>USAYPT Juror Form – REPORTER:</i>		FINAL SCORE:			
Theoretical Solution	Theory	Experimental Evidence	Expt	Questions & Answers	Q&A
EXCELLENT: <i>clear, comprehensive, and detailed solution</i> -- <i>all</i> approximations and assumptions are stated and relevant -- <i>all</i> concepts and principles used are stated clearly and relevant -- mathematical model is extensive, explained clearly, and shows excellent understanding	4	EXCELLENT: <i>extensive experiments with advanced data acquisition, analysis, and presentation</i> - design is extensive realization of theory model - uses advanced data acquisition techniques - uses advanced data analysis techniques - presents data in appropriate and easily understood forms - compares theory and data properly	4	EXCELLENT: <i>demonstrates deep understanding of the relevant physics in defense of the solution</i>	2
	3-1/2		3-1/2	BASIC: <i>demonstrates basic understanding of the relevant physics in defense of the solution</i>	1-1/2
	3		3	UNACCEPTABLE: <i>has extreme difficulty handling questions</i>	1
GOOD: <i>partially clear, but comprehensive and detailed solution</i> -- <i>most</i> approximations and assumptions are stated and relevant -- <i>most</i> concepts and principles used are stated and relevant -- mathematical model is partially developed, explained, and shows good understanding	2-1/2	GOOD: <i>partial experiments with advanced data acquisition, analysis, advanced presentation</i> - design is partial realization of theory model - uses advanced data acquisition techniques - uses advanced data analysis techniques - presents data in appropriate and easily understood forms - compares theory and data properly	2-1/2	CONSIDERATIONS – during the reporter's defense of the solution: -- how does the reporter identify and use the applicable principles of physics ? -- how does the reporter explain the theoretical model's conclusions? -- how does the reporter explain the experimental apparatus and the data obtained? -- how does the reporter use their data to support their conclusions? -- how does the reporter handle questions they were not prepared for? -- how does the reporter listen, speak, and maintain poise? -- how does the reporter use impromptu visual aids in defending their solution?	0
	2		2		
BASIC: <i>partially clear, but not comprehensive nor detailed solution</i> -- <i>some</i> approximations and assumptions are stated and relevant -- <i>some</i> concepts and principles used are stated and relevant -- mathematical model is partially developed, explained, and shows basic understanding	1-1/2	BASIC: <i>partial experiments with limited data acquisition and analysis, and basic presentation</i> - design is basic realization of theory model - uses limited data acquisition techniques - uses limited data analysis techniques - presents data in basic forms - compares theory and data properly	1-1/2		
	1		1		
POOR: <i>unclear, not comprehensive, nor detailed solution</i> -- <i>few</i> approximations and assumptions are stated and relevant -- <i>few</i> concepts and principles used are stated and relevant -- mathematical model is shallow , poorly explained, and shows little understanding	1/2	POOR: <i>flawed experiments with inadequate data acquisition, analysis, and presentation</i> - design is flawed realization of theory model - uses inadequate data acquisition techniques - uses inadequate data analysis techniques - presents data in inappropriate forms -- compares theory and data inappropriately	1/2		
	0	UNACCEPTABLE: <i>no relevant experimental evidence</i>	0		
UNACCEPTABLE: <i>no relevant theoretical solution</i>					

<i>USAYPT Juror Form – OPPONENT:</i>		FINAL SCORE:			
Analysis of Reporter's Theoretical Solution	Th pt	Analysis of Reporter's Experimental Evidence	Ex pt	Questions & Answers	Q&A
EXCELLENT: totally clear analysis of the strengths and weaknesses of the reporter's theoretical solution -- analysis of the reporter's theoretical solution's assumptions and approximations is totally clear -- opponent's understanding of relevant concepts and principles is deep -- opponent's questions and statements are detailed and insightful	3	EXCELLENT: totally clear analysis of the strengths and weaknesses of the reporter's experimental evidence -- analysis of the reporter's experimental design is totally clear -- analysis of the reporter's data and its validity is totally clear -- opponent's questions for the discussion are detailed and insightful	3	EXCELLENT: demonstrates deep understanding of the relevant physics in discussing the solution with the reporter -- uses the questions developed in the analysis to completely uncover the strengths and weaknesses of the report -- does not introduce own research	4
	2-1/2		2-1/2	GOOD: demonstrates good understanding of the relevant physics in discussing the solution with the reporter -- uses the questions developed in the analysis to partially uncover the strengths and weaknesses of the report -- does introduce some of own research	3-1/2
	2		2	BASIC: demonstrates basic understanding of the relevant physics in discussing the solution with the reporter -- uses the questions developed in the analysis to uncover only basic strengths and weaknesses of the report -- does introduce much of own research	3
BASIC: partially clear analysis of the strengths and weaknesses of the reporter's theoretical solution -- analysis of the reporter's theoretical solution's assumptions and approximations is partially clear -- opponent's understanding of relevant concepts and principles is basic -- opponent's questions and statements are partially detailed	1-1/2	BASIC: partially clear analysis of the strengths and weaknesses of the reporter's experimental evidence -- analysis of the reporter's experimental design is partially clear -- analysis of the reporter's data and its validity is partially clear -- opponent's questions for the discussion are partially detailed	1-1/2		2-1/2
	1		1	POOR: demonstrates little understanding of the relevant physics in discussing the solution with the reporter -- doesn't use the questions developed in the critique to uncover the strengths and weaknesses of the report -- introduces own research	1
POOR: incomplete analysis of the strengths and weaknesses of the reporter's theoretical solution -- analysis of the reporter's theoretical solution's assumptions and approximations is incomplete -- opponent's understanding of relevant concepts and principles is incomplete -- opponent's questions and statements are poor or shallow	1/2	POOR: incomplete analysis of the strengths and weaknesses of the reporter's experimental evidence -- analysis of the reporter's experimental design is incomplete -- analysis of the reporter's data and its validity is incomplete -- opponent's questions for the discussion are poor or shallow	1/2		1-1/2
UNACCEPTABLE: no relevant analysis of theoretical solution	0	UNACCEPTABLE: no relevant analysis of the experimental evidence	0	UNACCEPTABLE: has extreme difficulty leading the discussion and handling questions	0

DRAFT: 9 DECEMBER 2011 - APPENDIX 4 USAYPT Juror Form -- POSTER

<i>USAYPT Juror Form – POSTER:</i>		FINAL SCORE:			
Poster's Theoretical Solution	Th pt	Poster's Experimental Evidence	Ex pt	Questions & Answers	Q&A
EXCELLENT: clear, comprehensive, and detailed solution -- all approximations and assumptions are stated and relevant -- all concepts and principles used are stated clearly and relevant -- mathematical model is extensive, explained clearly, and shows excellent understanding	3	advanced data acquisition, analysis, and presentation - design is extensive realization of theory model - uses advanced data acquisition techniques - uses advanced data analysis techniques - presents data in appropriate and easily understood forms - compares theory and data properly	3	EXCELLENT: demonstrates deep understanding of the relevant physics in defense of the solution	4
	2-1/2		2-1/2	GOOD: demonstrates partially clear, but comprehensive and detailed solution	3
GOOD: partially clear, but comprehensive and detailed solution -- most approximations and assumptions are stated and relevant -- most concepts and principles used are stated and relevant -- mathematical model is partially developed, explained, and shows good understanding	2	GOOD: partial experiments with advanced data acquisition, analysis, advanced presentation - design is partial realization of theory model - uses advanced data acquisition techniques - uses advanced data analysis techniques - presents data in appropriate and easily understood forms - compares theory and data properly	2	BASIC: demonstrates basic understanding of the relevant physics in defense of the solution	2
	1-1/2		1-1/2	UNACCEPTABLE: has extreme difficulty handling questions	1
	1		1	CONSIDERATIONS – during the reporter's defense of the solution:	
		BASIC: partial experiments with limited data acquisition and analysis, and basic presentation - design is basic realization of theory model - uses limited data acquisition techniques - uses limited data analysis techniques - presents data in basic forms - compares theory and data properly	1/2	-- how does the reporter identify and use the applicable principles of physics ? -- how does the reporter explain the theoretical model's conclusions? -- how does the reporter explain the experimental apparatus and the data obtained? -- how does the reporter use their data to support their conclusions? -- how does the reporter handle questions they were not prepared for? -- how does the reporter listen, speak, and maintain poise? -- how does the reporter use impromptu visual aids in defending their solution?	
BASIC: partially clear, but not comprehensive nor detailed solution -- some approximations and assumptions are stated and relevant -- some concepts and principles used are stated and relevant -- mathematical model is partially developed, explained, and shows basic understanding	1/2				
POOR: unclear, not comprehensive, nor detailed solution -- few approximations and assumptions are stated and relevant -- few concepts and principles used are stated and relevant -- mathematical model is shallow , poorly explained, and shows little understanding	0	POOR: flawed experiments with inadequate data acquisition, analysis, and presentation - design is flawed realization of theory model - uses inadequate data acquisition techniques - uses inadequate data analysis techniques - presents data in inappropriate forms -- compares theory and data inappropriately	0		
UNACCEPTABLE: no relevant theoretical solution		UNACCEPTABLE: no relevant experimental evidence			