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**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) each Winter on a date determined by the Board of Directors approximately a year in advance. 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](http://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. 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 or her 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. Board and Member Meeting** On the night before the tournament, the USAYPT holds its open board and member meeting. While some USAYPT business is conducted there, a major purpose of that meeting is for team leaders to hear about the weekend’s events and to ask questions about the operation of the tournament. All team leaders are required attend the Board and Member meeting unless unforeseen travel delays occur.

**Section 2. Opening Ceremony.** The opening ceremony is the first event on the first day of the tournament. The team captains draw lots to determine their schedule of preliminarly physics fights. A team not in attendance at the opening ceremony will not be eligible for the final rounds.

**Section 3. Preliminary Rounds.** All competitive rounds before the final rounds are designated as Preliminary Rounds. A rotating sequence of oral Physics Fight

Rounds will require each team to act as a Reporter and as an Opponent (see below).

**Section 4. Final rounds.** The top four teams by score (see below) will be the

four teams that participate in the Final Rounds of physics fights. The team with the top score in the final rounds is the tournament champion.

**Section 5. Swartz Poster Session.** Teams who are not involved in the final rounds will compete in the Swartz Poster Session, under the procedures described below.

**ARTICLE IV. SPECIFIC PROCEDURES FOR AN ORAL**

**PHYSICS FIGHT (PRELIMINARY ROUNDS)**

**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.

Supervisory teachers are generally expected to serve on the jury for some rounds. 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).

**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 in conversation with 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** leads a conversation with the reporter about the report. It is the opponent’s job to evaluate the reporter’s work, to tease out through questions and discussion how well the reporter understands his or her problem. The opponent is encouraged to ask about the reporter’s application of principles of physics, experimental design, results and conclusions.

The conversation between Opponent and Reporter 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. No coaching or assistance from non-team members is ever allowed during a physics fight.

**4. Restrictions on Photography, Filming, note-taking, 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 and similar electronic communications devices must be turned off by all jurors and audience members; team members should not have access to such devices while on stage.

Observers who are not team members may watch any physics fight, including those not involving their own school. Such observers must ***not*** make any written or electronic record of any physics fight. However, observers *are* encouraged to share their observations with their school’s team members.

**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.

**1 min**

* Reporter presents the proposed solution to the problem

**10 mins**

* Opponent prepares for the conversation

**3 mins**

* The Opponent immediately engages in conversation with the reporter. The opponent is not permitted to address the jury at this point; rather, the opponent should ask questions and guide the discussion.

**12 mins**

* The reporter and opponent prepare for their summary addresses

**1 min**

* The opponent addresses the jury for one minute, giving a summary of the conversation.

**1 min**

* The reporter addresses the jury for one minute, giving a summary of the conversation and, if appropriate, responding to the opponent’s summary

**1 min**

* Questions from each jury member – the head juror allocates time for questions among jurors.

**8 mins**

***The teams, audience, and timing personnel leave the room***

* Jurors write *initial* comments and scores for Reporter and Opponent

**< 5 mins**

* Head Juror comments, physics discussion, and questions among the jury: After the other jurors have made initial comments on their form, the head juror will make up to 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. Jurors may or may not adjust their initial comments and scores based on the head juror’s comments. Forms are given to the Head Juror. Scores are NOT discussed with participants. The Head Juror delivers forms to the Tournament Director or designated representative.

**< 5 minutes**

**Elapsed Time: ~50 mins**

**ARTICLE V. SPECIFIC PROCEDURES FOR THE SWARTZ POSTER SESSION**

**Section 1. General Instructions.** Those teams who do not make the final rounds instead compete in the Swartz Poster Session. Each team will create posters presenting their solution to any one of the USIYPT problems. The LOC will provide poster boards for each team to hang up to sixteen 8.5” x 11” pages. We ask each team to have easily available a copy of their presentation that can be printed out quickly. The aesthetic quality of the poster is not judged; it is expected that the poster will be created in 15 minutes.

**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 two

members will judge each poster using the USAYPT Juror Form – Poster. See Appendix

4.

**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). The assigned jurors will evaluate the team member's oral defense for the duration announced by the tournament director. 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. PRELIMINARY ROUNDS PROBLEM CHALLENGE, REJECTION,**

**AND PRESENTATION**

**Section 1. Preliminary Rounds: 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 rounds without being disqualified from the Tournament.*

Before each round, the tournament director’s representative will present a card to each team’s captain listing the problems that are eligible for challenge in the upcoming round.

**Section 3. Multiple Presentations by a Single Team Member.**

* Preliminary Rounds: No single team member may give all three reports in the preliminary rounds. No single team member may take the floor for all three oppositions in the preliminary rounds.

**ARTICLE VII. SCORING**

**Section 1. Juror Scores.** After each PF the jury scores 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 she scores each aspect of each team’s presentation, and on which she is encouraged to write comments justifying her 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 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 team. 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. A team’s *tournament score* is the sum

of these multiplications:

3.0 x reporter raw score + 2.0 x opponent raw score = **Tournament score** [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. All jury forms from a team’s presentations during the tournament will be given in a folder to the supervisory teacher at the Closing Ceremony.

**ARTICLE VIII. THE FINAL ROUND PHYSICS FIGHTS**

**Section 1.** **Qualifying for the Final Round.** The four teams with the highest tournament scores qualify for the Final Round 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. Problem Choice for the Final Round**. All current USIYPT problems,

including those presented earlier in the Preliminary Rounds, may be presented.

**Section 3. Order of Presentation in the Final Round.** Immediately after the

announcement of the finalists, the team captains draw lots to determine their schedule of physics fights in the final rounds. The following or a similar table prepared by the tournament director will be used for the order of presentations in the final rounds



**Section 2. Final Round Oral Physics Fights.** The Opponent may challenge the Reporter on any problem except a problem that:

a. was presented by the Reporter earlier in final round

b. was rejected by the Reporter earlier in final round

c. was opposed by the Opponent earlier in final round

d. was presented by the Opponent earlier in final round

If there is only one problem left to challenge, the banned problems in "d" and "c" above

are successively removed, in that order.

**Section 3: Problem rejection in Final Rounds.** During final rounds, the Reporter may reject the challenge of one problem without penalty. A team may not reject more than one problem in the final round without being disqualified from the Tournament. The problem rejected during final round is not necessarily the same as one team rejected during the preliminary round.

Before each fight, the tournament director’s representative will present a card to each

team’s captain listing the problems that are eligible for challenge in the upcoming round.

**Section 4:** **Final rounds and Final rounds Physics Fight Roles, Assistance, and Order.** All provisions of the PF roles, assistance, and performance order listed in Article IV above are retained in the Final rounds.

**Section 5. Multiple Presentations by a Single Team Member** **in the Final Rounds.** No single team member may give both reports in the final rounds. No single team member may take the floor for both oppositions in the final rounds.

**Section 6: Scoring**.Scoring of each round is done as in the preliminary rounds. The Final Rounds score is found by multiplying the two report scores by 3, the two opponent scores by 2, and summing all four scores.

**ARTICLE IX. AWARDS**

**Section 1. Champion.** The USIYPT Champion is the winner of the Finals PF. When

teams have equal tournament scores in the final round (rounded to one decimal place),

the team with the best median raw score from the final rounds is the winner. The second tiebreaker will be the team with the highest tournament scores in the preliminary round. The third tiebreaker will be the team with the highest raw score in a single final round.The fourth tiebreaker will be the team with the highest raw score in a single preliminary round. If these methods do not work then both teams are champions and they hold the trophy for a period of half year each in the alphabetic order of the school name. The USIYPT Champion is awarded the traveling USIYPT Championship trophy.

**Section 2. Finalist.** The non-winning participants in the final round are designated USIYPT Finalists The non-winning finalists share second and third places. Based on the score difference between the teams, the tournament director decide if there is one or two second places for the Finalists.The second place team(s) is awarded the traveling USIYPT second place trophy, and is responsible for returning the trophy at the next USIYPT.

**Section 3. Clifford Swartz Trophy.** The winner of the Swartz Poster Session is awarded fourth place and the traveling USIYPT Clifford Swartz Trophy. They are responsible for returning the trophy at the next USIYPT.

**Section 4. Sixth Place.** All other USIYPT teams finish in Sixth Place and receive

Certificates of Participation.

**Captains’ Awards.** The student team members and observers from each participating school are asked to determine for themselves the “best report” and the “best opposition” which they themselves witnessed. During the closing tournament party, each team captain is asked to personally deliver award certificates to the captains of the teams earning these designations. Jurors, board members, and team leaders are asked to recuse themselves from discussions about who should receive Captains’ Awards.

**ARTICLE X IRREGULARITIES**

**Section 1. Expectation of Collegiality.** The USAYPT board of directors has every hope that the tournament runs exactly as planned. The board assumes collegiality and good faith from each team in the spirit of friendly competition.

**Section 2.**  **We don’t expect irregularities.** The issues in Article X are only brought up because they have actually happened or nearly happened in past tournaments. In the unlikely event that something comes up that is not covered in the regulations, the Tournament Director, in consultation with the USAYPT board, will make a final, un-appealable ruling.

**Section 3.** **Travel Delays.**

1. In the event that a team or teams is not present at the Opening Ceremony, that team is declared ineligible for the final rounds. The tournament director will announce ad-hoc changes to the preliminary round schedule, which may include additional byes for some teams, and may produce an unbalanced set of physics fights for the teams that are present.
2. If an initially absent team shows up at any point during the preliminary rounds, they may participate in all remaining preliminary physics fights, according to the original schedule, or a modified ad-hoc schedule determined by the tournament director. It is expected that all physics fights, regardless of whether they were originally scheduled or announced ad-hoc, may or may not count toward a team’s tournament score at the discretion of the tournament director.
3. A team that misses preliminary rounds is nevertheless eligible for the Swartz Poster Session and the Swartz Trophy.

**Section 4.** **The result of a procedural error stands.** If it is discovered later that a team, jury, or the tournament administration made a procedural error, the result of that error nevertheless stands. In no case will a physics fight be re-fought; in no case will the USAYPT revoke an awarded trophy after the tournament. If the board discovers an obvious error after the fact, they may certainly announce the error and how (if at all) they feel it might have changed the result; but nevertheless, the original result stands.