

guidebook



fyziklani2019

Dear Fyziklani 2019 participants!

I'm glad, that after long and demanding preparations, that started almost right after the end of last year's event, comes up a day when we will meet again. It is going to be already 13th year of FYKOS Fyziklani. I believe that you were looking forward to Fyziklani at least as much as us, organizers.

It is said, that number 13 is an unlucky number. But for us, it is mainly a prime number and we are not afraid of it. We had a long discussion on possible improvement after last year's competition and how to make it even more interesting and entertaining. We came up with the result – Fyziklani 2019 will not be just one of many competitions throughout a year, but a physics festival. We offer you competition with a rich accompanying program within a few days. The competition itself will be the culmination of this festival.

We have prepared many changes and improvements. One of the most visible is our new graphic along with the logo of a paper plane. We had a lot of designs and finally, we opted out for a paper covered with equations flying across the whole hall, that describes the nature of Fyziklani the best. We complemented our visual style with the silhouette of Prague, which is the city, where students from every place on earth meet every year to compete in physics. Another novelty is that all the teams will compete in one hall again after years. It was not that easy to find a space, where we would all fit in, but these are problems, that we like to resolve.

This info booklet, that is the best guide to Fyziklani 2019 is also a new release. You will find a lot of useful information not only about the competition, but about accommodation, the accompanying program and Prague as well.

As early as in the beginnings of preparation, we have known that we want to continue spreading the idea that Fyziklani is a competition open for everyone. It does not matter if you are next Einstein or you are just fascinated by physics from galaxies to quarks and leptons. It does not matter, if you come from the Czech Republic, Slovakia or any other country. Although only one team can win, everyone can have fun!

Finally, I would like to thank everybody from FYKOS, because we have organized Fyziklani 2019 mainly thanks to them. I would also like to thank to Faculty of Mathematics and Physics and to our partners and sponsor, without which we could not arrange something like this. I would specially thank three personalities, that took over the patronage of the 13th year of Fyziklani.

I firmly believe, that you will truly enjoy Fyziklani 2019 and that we will have a good time together!



Daniel Dupkala
Leader of Fyziklani

Competition schedule

09:00 - 09:45	Team registration <i>Registration of teams before the competition. For speeding up the registration, please, arrive on time.</i>
10:00 - 10:25	Opening ceremony <i>Explanation of rules and competition's course. Opening speech.</i>
10:30 - 13:30	Competiton <i>There will be also a prepared program for supervisors.</i>
13:45 - 14:30	Announcement of results <i>Rewarding the best teams. Closing ceremony.</i>

TOP hotel

Fyziklani 2019 will be held in TOP Hotel Prague, **Blažimská 1781/4, 149 00 Prague 4.**

Welcome to TOP HOTEL Prague, the biggest congress hotel in Europe. TOP HOTEL Prague**** is unique mainly by a wide range of offered services. The hotel has 5 congress halls, 16 lounges with a total capacity of 5000 seats with a possibility of various organization. The hotel can offer accommodation in more than 800 rooms and suites. There is also a spacious parking lot with a total capacity of 800 cars and 30 buses. There are also 5 luxury restaurants located in TOP HOTEL Prague, serving both Czech and international cuisine.

Acessibility

Subway line C (red line, goes e. g. from *Hlavní nádraží* (main train station) in *Háje* direction) – get off at stop *Chodov*. Then hop on a city bus no. 115 (direction *Městský archiv*) – get off at stop *Knovízská* (2 stops).

You can use night city bus no. 905, going e. g. via stops *Troja*, *Hlavní nádraží* or *I. P. Pavlova*, (where you can transfer from one-night bus to another) – get off at stop *Chodovec*, then it is around 10 minutes walk to the hotel.

You can **check-in** since 14:00, on the next day you have to leave your room with all your belongings and **check-out** before 11:00. You can store your luggage in a cloakroom.

Useful contacts

Daniel Dupkala – leader of Fyziklani **+421 915 506 689**, daniel.dupkala@fykos.cz

Daniela Pittnerová – lead organizer of FYKOS **+421 915 248 034**, daniela@fykos.cz
fyziklani.cz, fyziklani@fykos.cz

Patronage

Fyziklani is under the patronage of several politicians. One of them is Prague's mayor **Zdeněk Hřib**, who studied medicine at Charles University. Another patron is Member of Parliament **Jakub Michálek**. He attended Prague's Johannes Kepler Grammar School and continued his studies at Charles University where he graduated from law and theoretical physics. During his studies at Charles University he was an active organizer / member of FYKOS. We would like to thank to senator and Brno's planetarium director **Jiří Dušek** as well, an astrophysicist who studied at Masaryk University in Brno. There is even an asteroid 14054-Dušek found by the Czech astronomers named after him.



MUDr. Zdeněk Hřib



Mgr. et Mgr. Jakub Michálek



Mgr. Jiří Dušek, Ph.D.

Weekend after Fyziklani

Saturday 16. 02.

09:00 - 10:00	Physics lectures #1 <i>The ways of studying a microcosmos. (CZ)</i>
10:15 - 11:30	Physics lectures #2 <i>Variation principles in physics (CZ), Is the space weather important for us? (EN)</i>
12:00 - 13:30	Lunch <i>Individual lunch in shopping centre's food court.</i>
13:45 - 16:15	Guided city tour <i>Sightseeing in Prague.</i> National Technical Museum <i>A visit of National Technical Museum. (50 CZK/2 EUR)</i>
17:00 - 19:00	Prague Planetarium <i>Lecture in planetarium. (100 CZK/4 EUR)</i>
18:30 - 00:00	Spare time

Sunday 17. 02.

09:30 - 11:30	Excursions <i>Excursions at Faculty of Mathematics and Physics. Campus Karlov</i>
11:30 - 12:00	Closing ceremony

Lectures

The ways how to describe a microcosmos (1st block)

doc. RNDr. Jiří Dolejší, CSc.

This lecture will be lectured in Czech.

Mezi středoškolskou fyzikou a jakýmkoli současným oborem fyziky je docela velká vzdálenost a obvykle trvá několik let vyplněných studiem, než se tako vzdálenost ujde. V přednášce se pokusím ukázat několik výpočtů, odhadů a nástrojů, které student ve středoškolských učebnicích nenajde ale dříve nebo později se budou hodit.

Variation principles in physics (2nd block)

RNDr. Jiří Langr, CSc.

This lecture will be lectured in Czech.

Tak zvaný Fermatův princip říká, že světlo se mezi dvěma body šíří tak, aby dráhu proběhlo v co nejkratším čase. To je příklad „variačního principu“. Fermat se domníval, že princip jakési hospodárnosti vývoje představuje základní zákon přírody. „Metafyzický“ charakter tohoto zákona je třeba brát kriticky, variační formulace přírodních zákonů je však nesmírně cenným nástrojem fyziky.

Is the space weather important for us? (2nd block)

RNDr. Zdeňek Němeček, DrSc.

The lecture briefly touches following topics: space weather definition, space weather and meteorology, solar wind and interplanetary magnetic field, magnetic reconnection, formation and structure of the magnetosphere, major solar wind disturbances, geomagnetic storms and their consequences.

Excursions

Guided Prague tour

Saturday 13:45 – 16:15

We will visit a lot of historical sights and to physics connected places together. Tour will be guided in English.

National Technical Museum

excursion is happening parallelly to with guided tour of Prague

Museum is in operation since 1908 and is documenting evolution of many technical fields and industry in the Czech Republic. There are 14 permanent exhibitions from transportations to television studio.

Prague Planetarium

Saturday 17:00 – 19:00

At first, we will visit an exhibition focused on astronomy, astronautics and related fields. Then we will see projection Night Sky, where we will get to know the most interesting constellations.

MFF UK – Faculty of Mathematics and Physics

Sunday 9:30 – 11:30

We will visit some laboratories from selected workplaces at MFF UK. We will see departments of Physics of Biomolecules (Raman spectroscopy laboratories, biomolecules modelling and potencial medicament), department of Physics of Materials (electron microscopy) and department of Physics of Condensed Substances (experimental methods in low temperatures; preparation of monocrystals).

The competition is prepared by

Daniel Dupkala (*Leader of Fyziklani*)

Studying third year of Applied physics at MFF UK. Works at Astronomical Institute of Czech Academy of Science.

Daniela Pittnerová (*Leader organizer of FYKOS*)

Studying second year of General physics at MFF UK.

Michal Červeňák (*IT Fyziklani*)

Is a student of FJFI at ČVUT. Works at Laser Plasma Center of Czech Academy of Science.

Štěpán Stenclák (*IT Fyziklani*)

Studying second year of Software and Data Engineering at MFF UK.

Matěj Mezera (*Problems administrator*)

Studying second year of General physics at MFF UK.

Šimon Knoška (*Administrator of weekend after Fyziklani*)

Studying third year of General physics at MFF UK.

Markéta Calábková (*Typo editor*)

Studying second year of Mathematical Methods of Data Safety at MFF UK.

RNDr. Karel Kolář (*Senior consultant*)

Is under training for Air traffic controller at ŘLP, s.p. and is studying fifth year Ph.D. of Didactics and General Questions of Physics at MFF UK.

Tomáš Červeň (*Graphic designer*)

Studying first year of General physics at MFF UK.

Jiří Vala (*Communication with teams*)

Studying first year of General physics at MFF UK.

Sára Belejová (*Communication with teams*)

Studying first year of General physics at MFF UK.

Participated on preparation of problems, on proofreading and translations:

Jakub Šafin, Jozef Lipták, Matěj Mezera, Šimon Pajger, Karel Kolář, Daniela Pittnerová, Jáchym Bártík, Matěj Rzehulka, Matúš Kopunec, Katarína Častulíková, Jiří Vala, Mikuláš Matoušek, Jáchym Bareš, Vít Beran, Jan Střeleček, Viktor Rosman

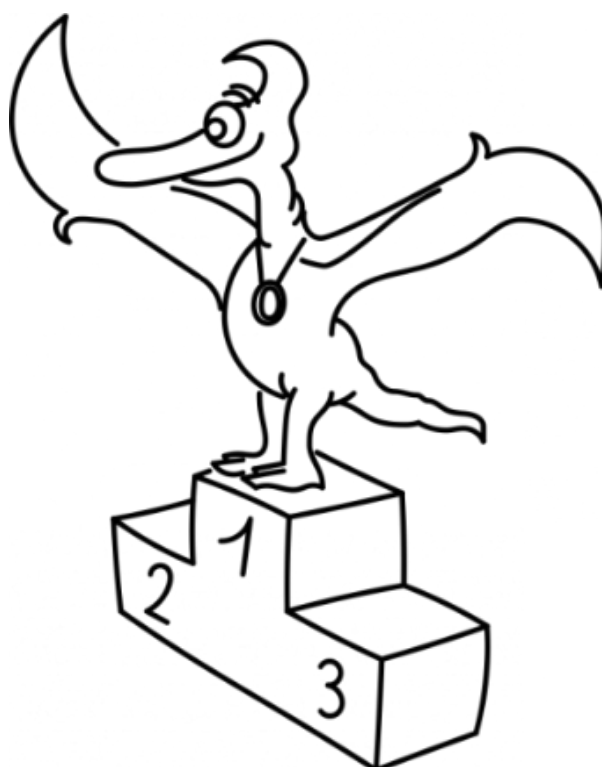
Organisers of the competitions work under FYKOS (Internet Physics Competition), which is opened to all high school students with interest in physics. We send eight new problems to contestants six times a year. They have about a month to solve these problems. Then they submit their own solutions, we correct them and send them back with comments. Everyone can participate, so do not hesitate!

Best of the contestants can attend one-week long spring and autumn camp focused on physics lectures, but also game.

Along with Fyziklani, FYKOS organises an online version of this competition – Fyziklani Online, that is held every year in late November, Day with Experimental Physics and Week with Applied Physics.

Faculty of Mathematics and Physics

FYKOS and Fyziklani 2019 are under the auspices of Faculty of Mathematics and Physics at Charles University. You can find more information on mff.cuni.cz/en.



Brief rules

- The competition is held for 3 hours between teams of 5 high-schoolers, who attend two different high schools at most.
- It is possible to participate in the English or Czech language only.
- At any instance, every team should have 7 tasks accessible. Solutions of the tasks should be written on the paper that states the problem and delivered to the judges.
 - In the case of a correct solution, the team earns points and gets a new task straight away.
 - In case of an incorrect solution, the team gets the task back to correct their answer.
 - Every problem solved on the first try is awarded 5 points, on the second try with 3 points, on the third try with 2 points and with 1 point otherwise.
- The only way to get a new task is to solve another one correctly.
- In an exceptional case, the judge can ask, how the team found the solution.
- Solutions are accepted in standard form, i. e. with correct units. Fractions should be simplified. You can use constants like π and round correctly. Gravitational acceleration of Earth's surface is $g = 9,81 \text{ m/s}^2$.
- It is allowed to use any written or printed materials. Electronic gadgets are strictly forbidden (except calculators).

Complete rules of Fyziklání

Participation in the Competition

- If a team wants to Participate it must register through fyziklani.org.
- By registering in the competition, each team agrees to follow the Rules of Conduct and these Game Rules and confirms they have made themselves acquainted with them.
- A team consists of 1-5 members.
- Members of the team must all be members of a school equivalent to high school (pre-university education) or lower.
- A team must consist of members belonging to at most two schools.
- Students of a single school can compete at most in three distinct teams. In the case of unfilled places or other similar conditions, the organisers reserve the right to make an exceptions to this rule.
- The name of the team can't spread political or religious views, can't be rude or insulting, or be in any other way inappropriate. The main organiser has a right to change the name of such a team, to censor it or to disqualify the team completely.

- By registering in the competition, you agree with releasing the results of your team in the form of basic information (your name, surname, category, school and points) in the results table on the website, handbooks and yearbooks of FYKOS.

Designation into Categories

- The competition is run with three categories, to which a team is assigned based on the following algorithm.
- Students studying in a year equivalent to the high school freshman year (1st of 4 before beginning university education) are assigned a coefficient 0, students in sophomore year (2/4) coefficient 1, students in junior year (3/4) coefficient 2, etc.
- The coefficient of a team is calculated as the arithmetic mean of the coefficients of individual members (they are added together and divided by the number of members).
- The team is assigned the lowest category which conditions it satisfies:
 - category A: team coefficient ≤ 4 ,
 - category B: team coefficient ≤ 3 and at most two members have a coefficient 4,
 - category C: team coefficient ≤ 2 , no member has a coefficient 4 and at most two members have a coefficient 3.
- A team can compete in category A even if the team coefficient assigns it to a lower category if they choose to do so during the registration
- Organisers reserve the right to move the team back to the lower category, or conversely move a team to category A if the need arises. The team will be notified of such a change at least a day before the competition begins.
- All categories share the same set of problems.
- Each category of the competition is announced in a separate list of results

Arrival to the competition

- Teams are required to arrive on time. Organisers reserve the right not to allow late teams into the competition.
- Teams are required to register after their arrival and specify the details of the members of the team (years, schools, etc.). Teams are obliged to clarify any changes in their composition.
- Each team will obtain an envelope with the first seven problems. The team is forbidden to open this envelope until they are instructed to do so by the leader of the room, inside which they are competing.

The game system and awarding of points

- The competition runs for 3 hours.
- At the beginning of the competition, each team receives 7 problems which they try to solve.
- If the team thinks it has arrived at the correct solution of the problem, they send one of the members to one of the examiners, who tells the member whether that solution is correct or incorrect. The designated member must present the paper with the problem with a solution clearly marked on the paper.
- The examiners have the right to request from the team the steps used to produce the solution.
- The presenting member selects the correct examiner based on the label on the problem sheet. The proper algorithm for this selection will be explained before the competition starts.
- If the solution is incorrect, the examiner marks this on the problem sheet and the presenting member returns to the team and continues solving this problem.
- If the solution is correct, the examiner marks the problem sheet with the number of points obtained and forwards the proposing member to the distributor, from which he receives a new problem sheet.
- The problems are awarded points, based on the attempts needed to solve the problem, in the following way: a single attempt – 5 points, two attempts – 3 points, three attempts – 2 points, and four or more attempts – 1 point.
- The aim of the team is to receive as many points as possible
- During the competition, the up-to-date results of all teams are projected in all rooms. These are then hidden 30 minutes before the competition finishes.
- If there is a serious issue discovered with one of the problems during the competition, organisers reserve the right to modify the problem or to remove the problem from the competition completely, excluding any right to compensation to any of the teams.
- During the competition, all the participants are allowed to communicate only with the members of their own team or with the organisers. Any interaction with teachers, other teams, etc. is strictly forbidden.
- Teams are permitted to use any literature in a printed, paper form. It is forbidden to use the internet during the competition. Furthermore, teams are permitted to use calculators and writing or drafting supplies. The calculator mustn't allow access to the internet or any other form of communication (devices like mobile phones, tablets, laptops, smart watches and similar are hence strictly prohibited to be used as calculators).
- All supplies that the competitors use or have in their surroundings during the competition, can be requested to be disclosed to the organisers for a control.

Conclusion of the Competition and Announcement of Winners

- The end of the competition is announced by the lead organiser of the room, in which the team competes.
- After the announcement of the end of the competition, no team is allowed to send a member to the examiners. If a presenting member was standing in a queue to an examiner when the end was announced, the member is allowed to stay there and their solution will be examined, but they are forbidden to use any writing supplies.
- If the winning team, or any other awarded positions, can't be determined purely by the number of points obtained, the order will be decided on several criteria in the following order: higher average points awarded per submitted problem, higher number of problems awarded 5 points, higher number of problems awarded 3 points, lower team coefficient, earlier date and time of team registration and random draw.

Breach of Rules

- In the case of a substantial suspicion of a breach of the Game Rules or the Rules of Conduct, the chief organiser has a right to perform extraordinary measures to confirm or rebut the suspicion and to prevent the continuation of disallowed conduct.
- In a case, where a team breaches some of the Game Rules or the Rules of Conduct, the consequences to that team will be decided by the chief organiser or by a committee designated with this task by the chief organiser.
- In the case of a breach of rules of a lesser magnitude, the chief organiser or a committee designated with this task by the chief organiser can decide on removal of a certain number of points of a team based on the severity of the breach.
- Organisers are allowed to disqualify a team, which commits a severe breach of rules.
- In the case of an extremely severe breach of the Game Rules or the Rules of Conduct, the Central Committee of the competition can decide on a ban on participation in the competition in the subsequent years or another punishment, to both the members of the team or to the school, from which the participants came.
- As an extremely severe breach of rules is considered especially any intentional attempt to obtain the problems or their solutions before the competition, their publication or disclosure to other participants of the competition. Any intentional attempts to impede the smooth running of the competition to both the other participants or to the organisers, or an attack on the game server is also understood as an extremely severe breach of rules

Final remarks

- Organisers reserve the right to make minor changes in the rules before the commencement of the competition.
- Resolution of any potential conflicts or issues, not covered by these rules, is decided by the chief organiser or an organiser designated by him.
- A team has a right to appeal against a decision of the chief organiser, but no later than 14 days since the decision has been made. The appeal will be processed by the Central Committee of the competition, which will decide the case no later than 40 days since the appeal has been made.
- These rules have been ratified by the Central Committee of the competition Fyziklání on 31. 7. 2018.
- These rules replace the previous version and come into effect on 31. 7. 2018.

Organisational Regulations of FYKOSi Fyziklani

Charles University, Faculty of Mathematics and Physics (“MFF UK”) in accordance with §3 paragraph 5 of Decree No. 55/2005 Coll. on the conditions of organisation and financing of competitions and exhibitions in leisure-based education, publishes these organisational regulations of the competition FYKOSi Fyziklani (these “Regulations”).

PART ONE

FUNDAMENTAL PROVISIONS

ARTICLE 1: NATURE AND PURPOSE OF THE COMPETITION

1. FYKOSi Fyziklani (“Fyziklani”) is a team competition in physics organised by MFF UK. For promotional purposes, the competition also uses a short name Fyziklani followed by the year in which it takes place.
2. Fyziklani runs as a single international central round, once per school year.
3. Fyziklani is a unified competition for all participating states.
4. The languages of Fyziklani are Czech and English. During registration, each team must choose the language in which it wants to compete.
5. In English, the competition uses the name Fyziklani followed by the year in which it takes place.
6. Teams participating in the competition are assigned to categories described in Art. 5 of these Regulations.
7. Fyziklani is aimed at teams of students of secondary schools. Students of primary schools may also compete.
8. The purpose of the competition is to develop knowledge of physics and related fields, to develop cooperation in teams, and to search for and motivate talented students.

ARTICLE 2: ANNOUNCER OF THE COMPETITION

1. Fyziklani is announced by MFF UK together with the Ministry of Education, Youth and Sports („Ministry”).

PART TWO

ORGANISATION AND CONTROL OF THE COMPETITION

ARTICLE 3: ORGANISATION

1. The vice-dean for Physics of MFF UK appoints the Central Committee of the competition Fyziklani („Central Committee“) based on the proposal of the main organiser of the Correspondence Physics Competition of MFF UK (“FYKOS”) for the purposes of organising Fyziklani.
2. The Central Committee must have at least 5 members.
3. The Central Committee is appointed for a limited period, which is two years since the appointment.
4. The Central Committee or its individual members are dismissed by the vice-dean for Physics of MFF UK after a consultation with the main organiser of FYKOS.
5. Members of the Central Committee may be appointed repeatedly.
6. One half of members of the Central Committee constitute a quorum.

7. The Central Committee makes decisions by a qualified majority of two thirds of the present members. If the qualified majority isn't attained for any option, the main organiser of Fyziklani makes a decision (see Art. 3, point 9).
8. The Central Committee may vote online. A decision made this way is valid if at least half of the members of the Central Committee take part in the vote at a predetermined date.
9. The Central Committee is allowed to invite other subjects to cooperate in organising Fyziklani.
10. The Central Committee appoints and can dismiss the main organiser of Fyziklani ("main organiser") based on a proposal of the main organiser of FYKOS.
11. The main organiser is appointed for an unlimited period of time.
12. The main organiser selects a team of organisers who prepare and organise the competition.
13. The main organiser reserves the right to commission other organisers with some of his/her tasks and competencies.
14. The main organiser decides the date of the competition in the current year, at the beginning of the corresponding school year at the latest.
15. During the school year, but before the beginning of registration at the latest, the Central Committee announces, based on a suggestion of the main organiser, the schedule of the competition and the rules of the competition for the current year (the "Rules").
16. If necessary, the main organiser reserves the right to make small changes in the Rules or schedule.
17. Any problems or disputable situations that may arise during Fyziklani are resolved and decided by the main organiser along with the present members of the Central Committee or a special committee established by the main organiser.
18. In the case of an extremely severe breach of the Regulations or the Rules, the main organiser reserves the right to disqualify a team from the competition, even after its closing.
19. A team has the right to appeal the decision of the main organiser or a designated committee, but only within 14 days after the decision is published.
20. The Central Committee will publish its final decision no later than 30 days after the appeal has been made.
21. All decisions are published on the website of the competition (fyziklani.cz) and come into effect as soon as published.
22. In the case of an extremely severe breach of the Regulations or the Rules, the Central Committee may do one or more of the following:
 - a. decide on a ban on participation in Fyziklani in the subsequent years, to the members of the team and/or to any of the schools they come from,
 - b. inform the organisers of other competitions about the situation that occurred,
 - c. decide on another punishment, to the members of the team and/or to any of the schools they come from.

ARTICLE 4: PARTICIPATION IN THE COMPETITION

1. Participation in Fyziklani is voluntary.
2. Each competing team has at least one and at most five members.
3. Registration for the competition follows the current Rules.
4. By registering for the competition, students and their teachers or legal representatives acknowledge these Regulations and the Rules and agree to follow them.
5. By registering for the competition, students consent to listing their names, surnames, school years and scores, along with the team they compete in and the schools they visit, in the published results

tables. They also consent to processing their names, e-mail addresses, addresses, birth years and graduation years for the purposes of organisation of Fyziklani and FYKOS.

6. Any participant may withdraw this consent using the e-mail address fykos@fykos.cz, or by personally visiting the co-organiser at the address Ke Karlovu 3, 121 16 Praha 2. Consent with processing of personal data of people under 16 years of age must be given by a legal representative. Personal data will be processed in accordance with the Regulation of the European Parliament and of the Council (of EU) No. 2016/679., as amended by later regulations.
7. By submitting the registration form, contestants agree with publishing their names, surnames, birth years, schools and the final ranking in the system of the Ministry, which records the results tables of competitions included in the Bulletin of the Ministry, for 10 years.
8. By submitting the registration form, the person registering the team or the team members declare that the submitted information is correct. If the registration form contains incorrect or false information, the main organiser is allowed to exclude the given team from the competition or disqualify it, even after the end of the competition.
9. The name of a team can't spread political or religious views, can't be rude or insulting, or be in any other way inappropriate. The main organiser has a right to change the name of such a team, to censor it or to disqualify the team completely.
10. The main organiser has a right to deny participation in the competition for severe reasons, to an entire team or its individual members.
11. By participating in Fyziklani, contestants or any other people don't gain any right to a refund of expenses related to participation in the competition.
12. The participation of students and teachers in the competition may be considered an activity directly related to education.

ARTICLE 5: CATEGORIES

1. Fyziklani is run with three categories.
2. Each category has a separate results table. All categories share the same problemset and the Rules.
3. The teams are assigned to categories based on their team coefficients. The team coefficient is calculated as the arithmetic mean of the coefficients of individual members. Teams are automatically assigned to the lowest possible categories according to Art. 5 point 5.
4. For international teams from states which use a significantly different system of education, the team coefficient is calculated using the expected year of completing the studies of level 3 of education according to the classification ISCED 2011 (International Standard Classification of Education). The coefficient of a student in his/her final year is 4, the coefficient of a student that should graduate in the next year is 3, and so on. The lowest possible coefficient is 0, for students with more than 4 years until graduation. In disputable cases, the main organiser may determine the coefficient of a participant.
5. The categories of Fyziklani are as follows:
 - a. Category A – team coefficient ≤ 4 ,
 - b. Category B – team coefficient ≤ 3 and at most two team members have coefficient 4,
 - c. Category C – team coefficient ≤ 2 , no team member has coefficient 4 and at most two members have coefficient 3.
6. The highest category is category A, a lower one is B and the lowest one is C.
7. During registration, a team may choose to participate in the highest category A, regardless of its team coefficient.

8. Any changes in team composition or assignment to a different category are only allowed until registration ends. Any further changes are possible only if approved by an organiser commissioned for this purpose by the main organiser of Fyziklani.
9. If necessary, the main organiser may decide to move a team back to a lower category corresponding to its coefficient, or to move a team to category A. The team must be informed about this change one day before the competition at the latest.

ARTICLE 6: CENTRAL ROUND

1. The organiser of the central round of Fyziklani is MFF UK.
2. A team may be registered for the central round by anyone, with the agreement of all team members or their legal representatives and their teachers.
3. The goal of competing teams is to gain as many points as possible within a time limit determined by the Rules. Teams gain points for correctly solved problems, according to the Rules.
4. The Rules uniquely define the order of teams in each category.
5. Presenting of the solutions follows the Rules.
6. The correctness of solutions is determined by a jury commissioned by the main organiser.
7. The problems, solutions and the results of problems are kept secret.
8. The competing teams find out the problem statements during the competition, according to the Rules.
9. Problems and their solutions are published after the end of the competition.
10. A successful team is a team that obtained at least 50 % of the normalised maximum of points in its category. The normalised maximum is calculated as the arithmetic mean of scores of the top three teams in a given category.
11. Results of the competition are published on its website fyziklani.cz within a date determined by the Rules and delivered to the Ministry in accordance with §8 of Decree No. 55/2005 Coll.
12. Participants of the central round do not gain any legal right to any material or other prizes.
13. The resolution of any disputable situations and problems, which aren't specified in the Regulations or the Rules, is decided by the main organiser or an organiser commissioned by the main organiser.

PART THREE

ARTICLE 7: SAFETY AND HEALTH PROTECTION

1. The responsibility for safety and protection of health of students during travel to and from the competition lies on the school sending the students to the competition, unless it reached a different agreement with the legal representatives.
2. During the competition, the organiser ensures the safety and protection of health of participants at the location of the competition, from the opening of the competition to its closing.

ARTICLE 8: CLOSING PROVISIONS

1. These Regulations have been ratified by the Dean of MFF UK on 15. 10. 2018 and replace the Regulations of Fyziklani from 25. 4. 2013.
2. These Regulations come into effect on 15. 10. 2018.

Dean of MFF UK
prof. RNDr. Jan Kratochvíl, CSc.

good luck

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