

# BILAN DU CONGRÈS MATH.en.JEANS 2017 DE CLUJ-NAPOCA

**Ne subissez pas les maths, vivez-les !**

L'association MATH.en.JEANS a organisé son 28e congrès annuel de mathématiques junior à Arras, Grenoble, Marseille, Nantes, Paris et Pau entre le 13 mars et le 30 avril 2017. D'autres congrès ont également eu lieu à Abu Dhabi, Cluj-Napoca, Düsseldorf-Essen, Liège et Montréal ; et des journées ont été organisées à Sarreguemines et Dakar. C'est en tout plus de 3 700 personnes, élèves, enseignant·e-s et chercheur·e-s et grand public, qui se sont rencontrées à l'occasion de ces événements.

*The 1<sup>st</sup> MeJ Congress which took place in Romania brought together more than 234 participants: students, teachers and researchers, coming from 14 high-schools from 9 cities in Romania, Italy and France, two Romanian universities and two research institutes. The language of the congress was English.*

*The Cluj-Napoca MATH.en.JEANS Congress took place in two institutions: Colegiul National Emil Racovita and Babes-Bolyai University who worked together to organize the event and welcome its participants. More information about the Congress can be found at <http://mathinjeanscluj.weebly.com/>. Two videos of the congress are available at <https://youtu.be/E1QNDJv4668> (short video- 10 mintes), <https://youtu.be/GH1J6zHmrBE> (long video - 33 minutes).*



## Inauguration

Pour inaugurer ce congrès, les participant-e-s ont eu le plaisir d'être accueilli-e-s par :

- Mariana Pop, general inspector at the Cluj County School Inspectorate
- Julien Dumercq, development manager MATH.en.JEANS Association
- Adrian Petrusel, dean of the Faculty of Mathematics and Computer Science, Babes-Bolyai University Cluj-Napoca
- Adrian Magdas, headteacher, Colegiul National Emil Racovita Cluj-Napoca



## Chiffres-clés sur la fréquentation

### Participant·e·s :

Nombre d'élèves de collège : 10

Nombre d'élèves de lycée : 153

Nombre total d'élèves (collégien·ne·s + lycéen·ne·s) : 163

Nombre de filles : 67

Nombre de garçons : 96

Nombre d'enseignant·e·s (et accompagnant·e·s) : 24

Nombre de chercheur·e·s des ateliers : 4

Nombre d'organisateur·rice·s : 43

**Nombre total de participant·e·s (en comptant les organisateur·rice·s) : 234**

	filles	garçons	élèves	enseignant.e.s	chercheur.e.s
Lycée français Anna-de-Noailles de Bucarest	7	8	15	1	1
Istituto Superiore Ettore Majorana Mirano (Venezia)		5	5	1	
ISS MARCO CASAGRANDE Pieve di Soligo (TV, Italy)	8	6	14	3	
Liceo Curiel, Padova, Italy		4	4	1	
Colegiul Național Iași	4	7	11	3	1
Colegiul Național C. Negruzzi Iași	10	10	20	3	1
Lycée d'Altitude de Briançon	2	5	7	2	
Colegiul Național „Mihai Eminescu” Satu Mare	5	5	10	2	
Liceo Nievo, Padova, Italia	1	7	8	1	
Colegiul Național de informatică Tudor Vianu, București	7	15	22	1	
Colegiul Național Mircea cel Bătrân Constanța	6	6	12	4	
Liceul Tehnologic „Ion I. C. Brătianu”. București		2	2	1	
Colegiul Național „Mihai Eminescu”, București		6	6		
Colegiul Național Emil Racoviță Cluj-Napoca	17	10	27	1	1
	67	96	163	24	4

### Implication des chercheur·e·s et doctorant·e·s :

There were only 4 researchers; they participated in Congress activities.



## Visiteur·euse·s :

Students at the Faculty of Mathematics and Computer Science Babes-Bolyai University, math teachers from 15 schools from the Cluj County, secondary (upper and lower secondary) school students from 6 schools from the Cluj County – including students from our school, and parents visited our Congress. We have to mention one math teacher from Livada (a village in the Cluj County) who visited the Congress with one of her students who had good results in a math contest; the student participation in the Congress was a special reward for his achievements. One University student from Università degli Studi di Milano has, also, visited the Congress.



## Les élèves, acteur·rice·s du congrès

Pendant les 2 jours les jeunes ont été acteurs de leurs recherches : ils ont concrétisé leur travail d'une année, ils ont présenté leurs résultats et les ont soumis à l'épreuve de la critique, au moyen de posters et d'animations et sous forme d'exposés en amphithéâtre.

**Le forum :** les ateliers y ont présenté leurs travaux sous forme de posters.

The Forum included both, interactive presentations and posters. In 32 stalls, there were displayed posters (out of 36 stalls). Posters were either 'hand-made' (written & drawn by the students) or 'computer-made' (looking more professional).

**Nombre de stands : 36**

Points positifs	Points négatifs
<p>⇒ Many good posters – which showed that the students put a lot of effort in producing them.</p> <p>⇒ For many of the participating MeJ workshops this was the first experience in a Forum.</p> <p>⇒ In the Forum, there were many hands-on activities proposed to the audience.</p>	<p>⇒ Some of the posters were too small, and/ or they contained a lot of information and the written part was hard to be seen.</p> <p>⇒ Some of the MeJ workshops registered for the Forum but they didn't prepare their stalls, so we had 4 empty stalls.</p>



## Les exposés et les animations :

- The scientific presentations were held on the 7<sup>th</sup> of April at the Faculty of Mathematics and Computer Science, Babes-Bolyai University, in 3 amphitheatres (2 amphitheatres with 80-100 place, 1 amphitheatre with 200 places)
- The interactive presentations were held in the Forum – on the 1<sup>st</sup> floor corridor and 3 classrooms at Colegiul National Emil Racovita, on the 8<sup>th</sup> of April, from 9.30 – 11.00 and from 11.30 – 12.30.
- Number of scientific presentations: 35
- Number of interactive presentations: 36

- Three university professors moderated the scientific presentations sessions. During the scientific presentation sessions, the technical assistance was ensured by 12 volunteer students from the Faculty of Mathematics and Computer Science. All the MeJ students' presentations were collected before the Congress and saved on the computers which were assigned for each amphitheater.
- In the Forum, each stall consisted of a displaying panel, a table and 2-3 chairs. 10 volunteer high-school students supported the MeJ students to arrange their stalls.



Points positifs	Points négatifs
<p>⇒ In the plenary presentations, the students presented their work in the allocated time (15 minutes + 5 minutes for questions and answers).</p> <p>⇒ There were many oral plenary presentations done by students.</p> <p>⇒ There were many different research topics presented.</p> <p>⇒ "not mixing the plenary and forum presentations was beneficial to the congress" (participant opinion); in the 3 amphitheatres were almost full.</p> <p>⇒ The plenary presentations were done by students in three parallel sessions – this helped us to schedule all the plenary presentations in the first day of the congress.</p> <p>⇒ It was a good idea to collect the power-point presentations before the Congress; all the presentations were uploaded (and checked if they open) on the computers in the amphitheatres.</p>	<p>⇒ Few questions (or no questions) were asked by the participants in the plenary presentations.</p> <p>⇒ Some teams learnt by heart their presentations – their speech was at a high speed and hard to understand.</p> <p>⇒ Some participants considered that there were too many plenary presentations in one day.</p> <p>⇒ "I believe that more time was needed to work presentations. I would have liked that there were questions about the work presented, perhaps by those responsible." (teacher, Italy)</p> <p>⇒ Some participants mentioned in the evaluation forms that they would have preferred to be able to take part in the presentations of all the students who came to the congress. Unfortunately, as the schedule and presentations were unfolding in different rooms, that was not possible.</p>

## Paroles d'élèves

*"The fact that we have the opportunity to meet students from other countries and get to understand how they have tackled different math topics discovering their way of thinking is one of the congress' strengths."* (student, Colegiul Național Emil Racoviță Cluj-Napoca)

*"We met students from other schools and found out what problems have they been working on."* (student, Colegiul National C. Negruzzi Iași)

*"The presentations were very good, the students were interested and dedicated and the teachers and session's coordinators were patient and attentive."* (student, Colegiul Național de Informatică Tudor Vianu, București)

*"I liked the stands a lot."* (student, Lycée Français Anna de Noailles de Bucarest)

*"The congress is interesting because it presents original ideas and problems, but sometimes we didn't even know the problems of other students. I think that in addition to the description of the problem that each group had, it should be given a general description too, just to have an idea of what you are going to see at the presentation."* (student, ISS "M. CASAGRANDE", Pieve di Soligo, Treviso, Italy)

*"Presentation of the work to people that don't know anything about it helps the students to learn the right way to explain the work without too many details."* (student, ISS "M. CASAGRANDE", Pieve di Soligo, Treviso, Italy)

*"In my opinion strength of the congress is the new information accumulated from each problem presentation."* (student, Colegiul National C. Negruzzi Iași)

*"This congress is a good opportunity to share your work and discuss it with students from different countries."* (student, Colegiul Național Emil Racoviță Cluj-Napoca)

*"The works presented were relevant and interesting."* (student, ISS "M. CASAGRANDE", Pieve di Soligo, Treviso, Italy)

*"The problems were too easy, uninteresting, and most of the solutions with which the students came up were either insufficient or had no contribution to anything whatsoever. This congress seemed like a "market study" of the current student and "science-oriented youth" population."* (student, Lycée Français Anna de Noailles de Bucarest)

*"I liked that every presentation contained something new and some interesting topics."* (student, Colegiul Național de Informatică Tudor Vianu, București)

*"I think that the congress is a perfect way to communicate directly with other students who have the same pleasure for research as you."* (student, Colegiul Național Emil Racoviță Cluj-Napoca)



## Participants' opinion

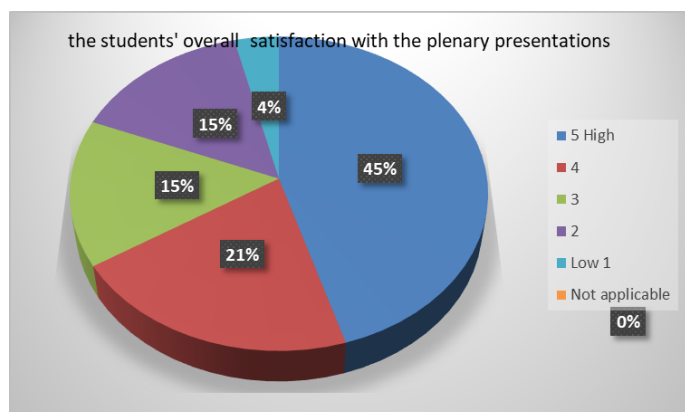


Chart 1. The students' overall satisfaction with the plenary presentations

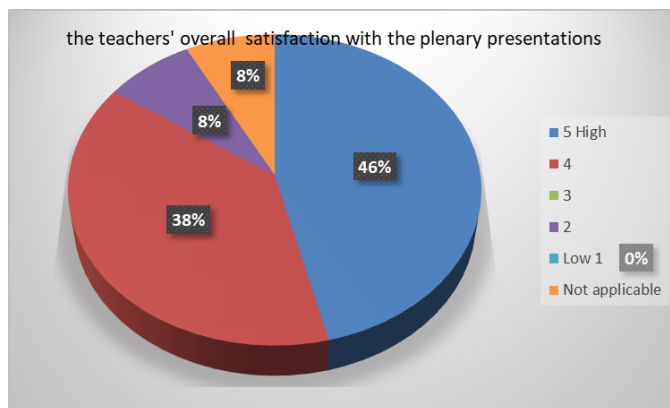


Chart 2. The teachers' overall satisfaction with the plenary presentations

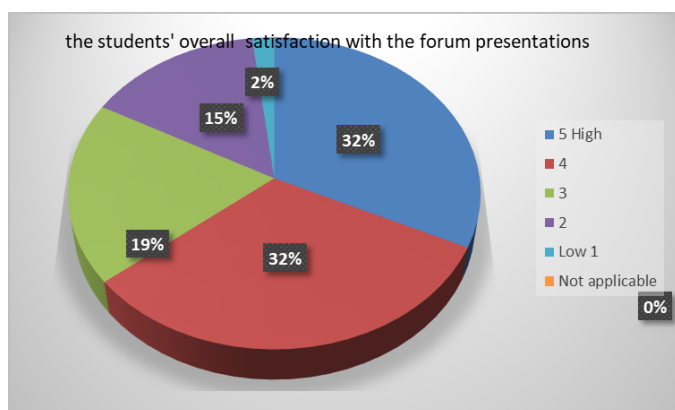


Chart 3. The students' overall satisfaction with the forum presentations

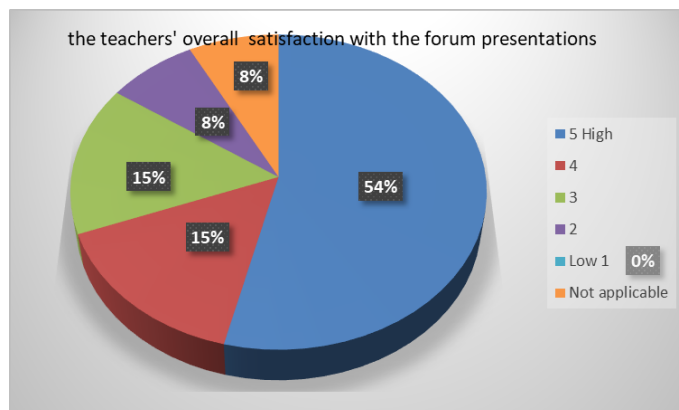


Chart 4. The teachers' overall satisfaction with the forum presentations

**Le congrès MATH.en.JEANS, un lieu d'échanges et de liens entre le public scolaire, élèves et enseignant·e·s, et le monde de la recherche**

## Deux conférences de mathématicien·ne·s

Au congrès MATH.en.JEANS de Cluj-Napoca, deux conférences ont été données par des mathématiciens.

We had an inaugural conference: An elementary model of learning and some consequences by Dr. ANDRÁS Szilárd Károly, Associate Professor at the Faculty of Mathematics and Computer Science, Babes-Bolyai University, and a closing conference: Discrete mathematical models in populations dynamics by Dr. Marcel ȘERBAN, Associate Professor at the Faculty of Mathematics and Computer Science, Babes-Bolyai University.



The two conferences were 'academic' style, and most of the mathematical results presented could be understood by motivated above average high-school students.

In the inaugural conference, the author presented two mathematical models to answer the questions: How can we double our knowledge? In order to double our knowledge, what should we do with our invested energy?

In the closing conference, professor Marcel ȘERBAN presented some single species discrete models (exponential growth, exponential growth with migration, logistic) and an age structured population model.



Points positifs	Points négatifs
<ul style="list-style-type: none"> <li>⇒ The mathematic content of the two presentations was excellent.</li> <li>⇒ "The teachers that presented had really interesting topics and I definitely look up to them." (student opinion)</li> <li>⇒ The two professors tried to lower the level of mathematics as much as possible.</li> </ul>	<ul style="list-style-type: none"> <li>⇒ The 2 presentations were not interactive (interactivity is usually lacking in Romanian university professors' presentations).</li> <li>⇒ Many students complained that the 2 presentations were too long (30 minutes each), hard to follow, boring. "I think the opening and the closing conferences should be shorter or maybe interactive, anything that would keep the audience captivated." (student opinion)</li> </ul>

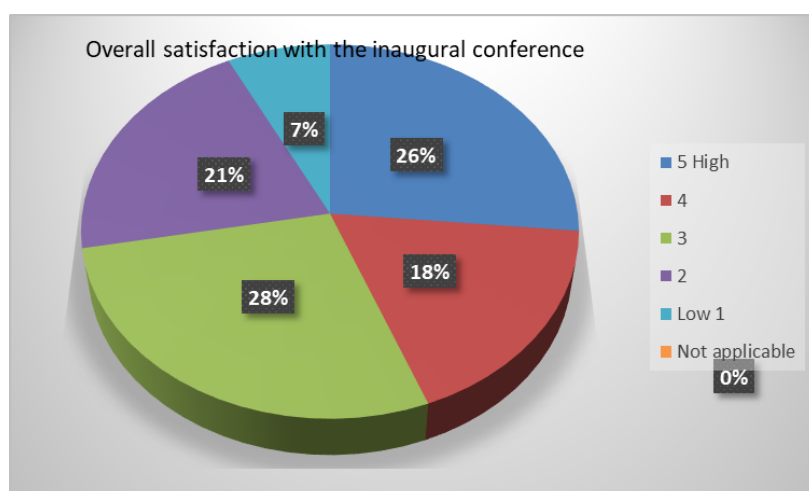


Chart 5. The participants' overall satisfaction with the inaugural conference

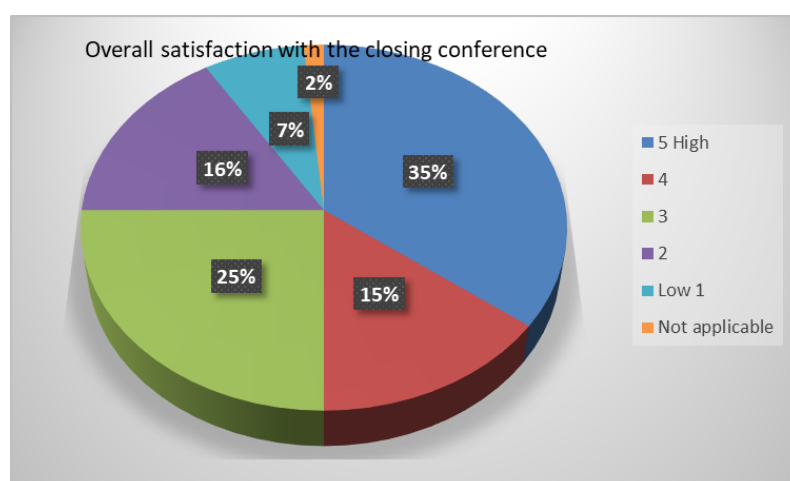


Chart 6. The participants' overall satisfaction with the closing conference

## Le congrès MATH.en.JEANS, un lieu de détente et de découvertes

### La soirée

The Youth Evening has been organized on the 7<sup>th</sup> of April, 21.00 – 23.30. Most of the students and teachers participated. It was held in a Club in the city centre, organized by Students' Council from Colegiul National Emil Racovita. There was music, dance, and during the evening the participating students had the chance to socialize with students from other groups and with some high-school students from our school.



## Paroles d'élèves

*"The Friday night party was great and it must be on the schedule next years."* (student, Colegiul Național Emil Racoviță Cluj-Napoca)

*"It was a really good thing that there was a Youth Evening because there were made the most of the connections between students that are implicated in the same activity."* (student, Liceo Nievo Padova Italy)

*"I think It is a good idea to organize The Youth Evening because It helps everyone to meet new people of the same age becoming more sociable."* (student, ISS "M. CASAGRANDE", Pieve di Soligo, Treviso, Italy)

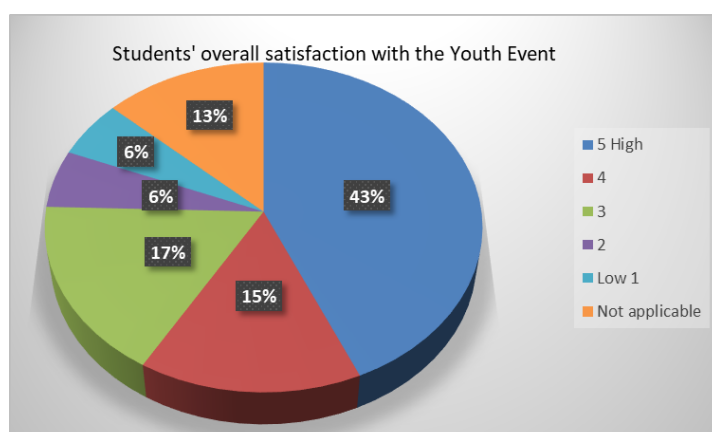


Chart 7. The students' overall satisfaction with the Youth Event

## Les visites

On the 8<sup>th</sup> of April, we have offered a guided tour of the Cluj-Napoca city centre. The guides were from the Cluj Guided Tours Association. Around 80 participants decided to participate in the guided tour (3 groups, each group had its guide). The presentation of different sights and the interesting historical facts related to Cluj-Napoca was made in an interactive way.

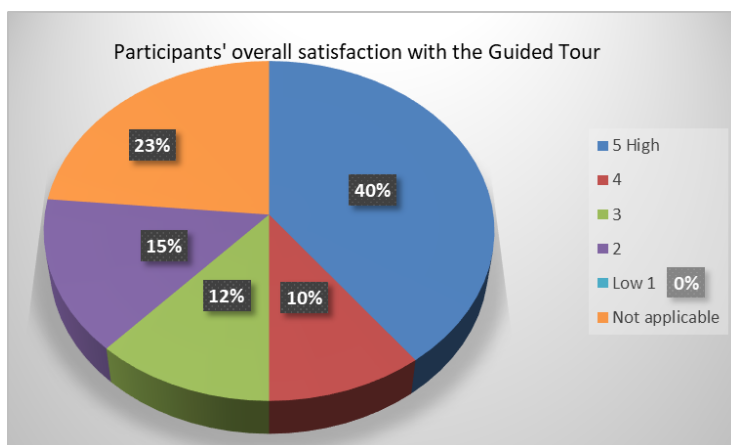


Chart 8. The participants' overall satisfaction with the Guided Tour



## L'organisation

### Bilan de l'organisation

*Colegiul National Emil Racovita Cluj-Napoca, the Faculty of Mathematics and Computer Science, Babes-Bolyai University Cluj, and the MATH.en.JEANS Association have jointly organized the Cluj-Napoca Congress.*

Ariana-Stanca Vacaretu, MeJ teacher at Colegiul National Emil Racovita Cluj-Napoca, has coordinated the Congress organization. She also created and updated the website of the project, published the Proceedings of the Congress and coordinated all the high-school volunteers.

Continuous support has been given by: Françoise Bavard – president of the MATH.en.JEANS Association, Hubert Proal, financial referent of the MATH.en.JEANS Association, Clémence Coudret, assistant manager and event coordinator of the MATH.en.JEANS Association – she supported us with the bags, notebooks, pens and badges as well as with the design of the Congress poster, Julien Dumercq, development manager of the MATH.en.JEANS Association – he also participated in the Congress and represented the MATH.en.JEANS Association during the Congress.

Colegiul National Emil Racovita Cluj-Napoca has offered important institutional and logistic support; we have to mention the contribution of:

- Adrian Magdas (deputy manager) who identified sponsors for this event so we could cover the 2 lunches and the snacks during the breaks for all the participants (without asking the participants to pay any registration fee),
- Valentina Vasilescu and Alexandrina Cruceru (MeJ teachers) who were responsible with the logistics of the Congress (location: Colegiul National Emil Racovita),
- Monica Columban (teacher) who was in contact with the press – in order to disseminate information about the Congress in regional newspaper(s),
- Kevin Tatar (student) – the photographer of the Congress,
- Sergiu Magdas (student, president of the Students' Council) – organized the Youth Evening,
- 26 volunteer students from the 11<sup>th</sup> grade A – who, in pairs, offered local support (and orientation) to each participating school-group.

The Faculty of Mathematics and Computer Science, Babes-Bolyai University had an important role, as it brought a strong institutional and logistic support. We have to mention:

- Dr. Adrian Petrusel (Dean) – coordinator of the opening ceremony and ensured the necessary logistics for the students' plenary presentations,
- Dr. George Ciprian Modoi, Dr. Brigitte Breckner, Dr. Iulian Simion (university professors) – coordinators/ facilitators of the students' plenary presentations
- Drd. Lorand Parajdi – coordinator of the volunteer university students
- 12 volunteer university students – who ensured the technical support during the students' plenary presentations.

Points positifs	Points négatifs
<p>⇒ Good organization – we tried to take care of the details</p> <p>⇒ Volunteer students are an excellent resource in organizing such an event</p> <p>⇒ Organization of the Congress was one of the main strengths mentioned by the participants in the evaluation forms</p> <p>⇒ After the closing of the Congress, we sent out the link to the evaluation questionnaire.</p> <p>⇒ All the participating students received attendance certificates.</p> <p>⇒ The Congress has been video-recorded by a professional.</p>	<p>⇒ Only 68 participants (approx. 36%) filled out the Congress evaluation form.</p> <p>⇒ Researchers had no special role during the Congress.</p> <p>⇒ Schools', teachers' and researchers' efforts to participate in the Congress have not been officially recognized (attendance certificate or something similar).</p>

## Participants' opinions

- *"The venue was grand and the organisation really well set!"* (development manager, MATH.en.JEANS Association)
- *"Strengths: organisation of the Congress and the discussion of problems with other students."* (student, ISS "M. CASAGRANDE", Pieve di Soligo, Treviso, Italy)
- *"The organisation was really good in everything."* (student, ISS "M. CASAGRANDE", Pieve di Soligo, Treviso, Italy)
- *"The time we spent in Cluj was amazing. I hope I will be part of this congress next year, too, because I have learned a lot of new things there."* (student, Colegiul Național „Mihai Eminescu” Satu Mare)
- *"It was a wonderful experience and I met a lot of friendly people."* (student, Colegiul National Emil Racovita)
- *"I think that it was a wonderful experience I would recommend to anyone who is interested in math."* (student, Liceo Nievo Padova Italy)
- *"J'ai adoré, le congrès c'est une expérience unique."* (student, Lycée d'altitude de Briançon)
- *"The congress was very well organized."* (teacher, Liceo Curiel Padova, Italy)
- *"The congress was very well organised, everybody brought their contribution and cared for the whole activity. It was both a formal and a friendly environment for the students and teachers and I think everybody enjoyed it. I don't think the congress had any weaknesses."* (student, Colegiul Național Iași)
- *"Strengths are: not only the usefulness of the information which is offered to each student, but also the relationships which can be formed between the students. Weaknesses: the students should have been asked more questions at the plenary presentations."* (student, Colegiul National Emil Racovita)

- *“C'est un congrès très bien organisé. Je n'ai pas vu de faiblesses particulières.”* (student, Lycée d'altitude de Briançon)
- *“Strengths: excellent organization, great idea. No weaknesses.”* (teacher, Colegiul National C. Negruzzi Iași)
- *“The congress was overall a very positive experience. The main strengths were the possibilities to learn something new and meet new people. The main weakness probably was the lack of participation both during the plenary and the forum. I would therefore suggest finding some other ways of making also people watching the presentations participate.”* (student, Liceo Nievo Padova Italy)
- *“Everything was very well organized and we saw Ariana as an efficient coordinator. May be the weather could be better.”* (teacher, Colegiul Național Iași)
- *“I think that the organisation is one of the congress' strengths, because everything was very well prepared for everybody, students and teachers. About weaknesses I don't think there is anything to say, as long as I felt very well and there is nothing to complain about.”* (student, Colegiul Național „Mihai Eminescu” Satu Mare)

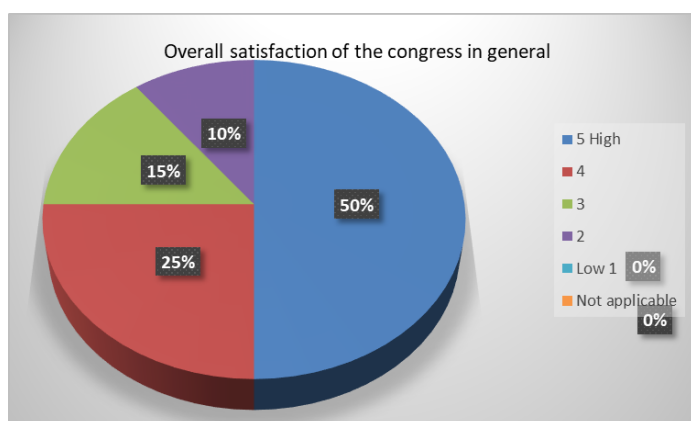


Chart 9. Overall satisfaction of the Congress in general

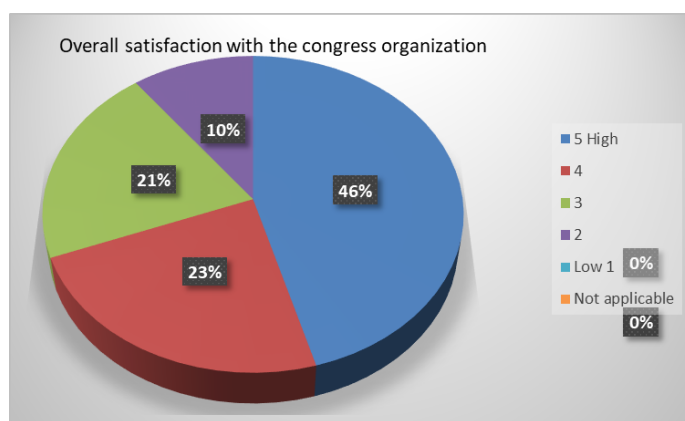


Chart 10. Overall satisfaction of the Congress organization

## Petits regrets

Specific role/ tasks should be assigned to researchers who attend the congress. As there were only 4 researchers, we thought not to assign any specific role/ tasks – and it was a pity not to use this valuable resource. They could be involved in the evaluation of the students' presentations (qualitative evaluation).

It also was a pity not to organize a meeting students-researchers.

## Proposition(s) pour les prochains congrès

- Probably, the Congress should last one more day – in this way, more time can be allocated to students' plenary presentations.
- Time slots for plenary presentations should alternate with forum presentations – e.g.: plenary presentations from 9 to 10.30, forum presentations from 11 to 12.30 and so on.

- Make sure that questions are asked to each group of students (in the plenary presentations); this can be done either by inviting volunteer PhD university students to attend the plenary presentations and ask questions or by teaching MeJ students how to follow other students' presentations and ask questions (in the MeJ workshop).
- For the opening and closing conferences, interactivity is needed.

### **Participants' suggestions**

- *"Send appreciation letters to participating schools; the letters should be official letters, signed by representatives of the MATH.en.JEANS Association and the institutions who organized the congress."* (teacher, Colegiul Național de Informatică Tudor Vianu, București)
- *"Include a short abstract of each research topic and results in the official program."* (teacher, Colegiul Național C. Negruzzi Iași)
- *"Have more conferences."* (teacher, Liceo Curiel Padova, Italy)
- *"Teachers who manage the conference should ask more question to the student after the presentation."* (teacher, Lycée d'altitude de Briançon)
- *"Include in the programme more activities which can be made in the town where congress is made."* (student, Colegiul Național C. Negruzzi Iași)
- *"I think the opening and the closing conferences should be shorter or maybe interactive, anything that would keep the audience captivated."* (student, Colegiul Național de Informatică Tudor Vianu, București)
- *"I think it would be better if many other students from other countries were involved: the more we are, the better it is!"* (student, ISS "M. CASAGRANDE", Pieve di Soligo, Treviso, Italy)
- *"Maybe there should be more events to help people from different schools know each other."* (student, Lycée Français Anna de Noailles de Bucarest)
- *"Include in the programme a sportive day, sport contests, chess games or other interactive game."* (student, Lycée Français Anna de Noailles de Bucarest)
- *"As a suggestion, I'd say that the congress should have harder or real problems, something that would fuel students' will to contribute to the world."* (student, Lycée Français Anna de Noailles de Bucarest)



## Revue de presse

As far as we know, there were published articles related to the Cluj-Napoca MATH.en.JEANS Congress in:

- Faclia de Cluj – 11 April 2017 (regional newspaper)
- Le Dauphiné Libéré (regional newspaper)
- Telegraf online – 11 April 2017 (local online news)
- Ziua de Constanta – 11 April 2017 (regional newspaper)
- Cuget Liber – 12 April (regional newspaper)
- Lycée Français Anna de Noailles website

All the articles can be found at <http://mathinjeanscluj.weebly.com/after-the-congress.html>.

## Partenaires du congrès

### Partenaires nationaux

Le Ministère de l'éducation nationale, le Fonds d'expérimentation pour la jeunesse (La France s'engage), le CNRS, l'Institut Henri Poincaré, la région Île-de-France, le Crédit Mutuel Enseignant et le CIJM.



### Partenaires locaux

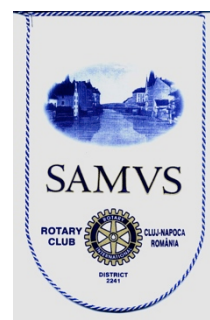
Colegiul Național Emil Racoviță Cluj-Napoca,  
Universitatea Babeș-Bolyai, Facultatea de Matematică și Informatică  
Inspectoratul Școlar Județean Cluj  
Societatea de Științe Matematice România, Filiala Cluj  
Rotary International Romania, Cluj-Napoca SAMVS



**UNIVERSITATEA BABEȘ-BOLYAI**  
Facultatea de Matematică și Informatică



MINISTERUL EDUCAȚIEI NAȚIONALE



## Annex

All the charts used in the report are based on the data collected via the evaluation questionnaire (a Google form sent out after the closing of the Congress).

The evaluation questionnaire has been filled out by 68 participants (see the table below):

School	Students	Teachers	Researchers	Other
Colegiul Național „Mihai Eminescu” Satu Mare	5	2	0	0
Colegiul National C. Negruzzi Iași	3	2	1	0
Colegiul Național de Informatică Tudor Vianu, București	3	1	0	0
Colegiul Național Emil Racoviță Cluj-Napoca	17	0	0	0
Colegiul Național Iași	1	1	0	0
ISSS “ M.CASAGRANDE”, Pieve di Soligo, Treviso, Italy	11	1	0	0
Liceo Curiel Padova, Italy	0	1	0	0
Liceo Nievo Padova Italy	2	1	0	0
Liceul Tehnologic „Ion I. C. Brătianu” București	0	1	0	0
Lycée d'altitude de Briançon	5	2	0	0
Lycée Français Anna de Noailles de Bucarest	6	1	0	0
MATh.en.JEANS Association	0	0	0	1