

Birzeit 2018 Conference, August 27-30
Applied Mathematics and Random Structures
Scientific and Financial Report

Web site: <http://lipn.univ-paris13.fr/~nicodeme/birzeit18RAND/>

The conference gathered 39 attendees around various fields of mathematics: Statistics, Game Theory, Analytic Combinatorics, Probability, Differential or Difference Equations, Matrices, Stochastic Optimal Control Problems, Partial Differential Equations, Binary Search Trees, Ideals on Skew Matrices.

In particular, we had as attendees,

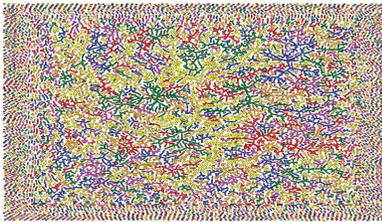
- 13 Professors (7 Palestinians, 6 Frenchs);
 - 2 from Al-Quds (Jerusalem-East),
 - 1 from PPU-Hebron,
 - 4 from Birzeit,
 - 1 from Paris13,
 - 2 from Versailles,
 - 1 from Nanterre,
 - 1 from Amiens,
 - 1 from École polytechnique.
- 2 Researchers from Paris13 and 1 from Nokia-Bell Labs
- 24 Students
 - 19 from Birzeit
 - 3 from Al Quds
 - 1 from Polytechnic Palestine University Hebron (PPU)
 - 1 from Malaya

There was a large majority of female students in the audience, 19 out of 24 students.



Birzeit 2018 Conference
"Applied Mathematics and Random Structures"
Faculty of Science, Room S240
<http://lipn.univ-paris.13fr/~nicodeme/birzeit18RAND/>

A critical graph of 40000 nodes;
 the giant component is a huge tree [credit N.Broutin]



Organizing Committee
 Brigitte Chauvin: Paris Saclay, France
 Pierre Nicodème: Paris 13 University, France
 Frédérique Bassino: Paris 13 University, France
 Abdelrahim Mousa: Birzeit University, Palestine
 Hani Kabajah: Birzeit University, Palestine

Sponsors







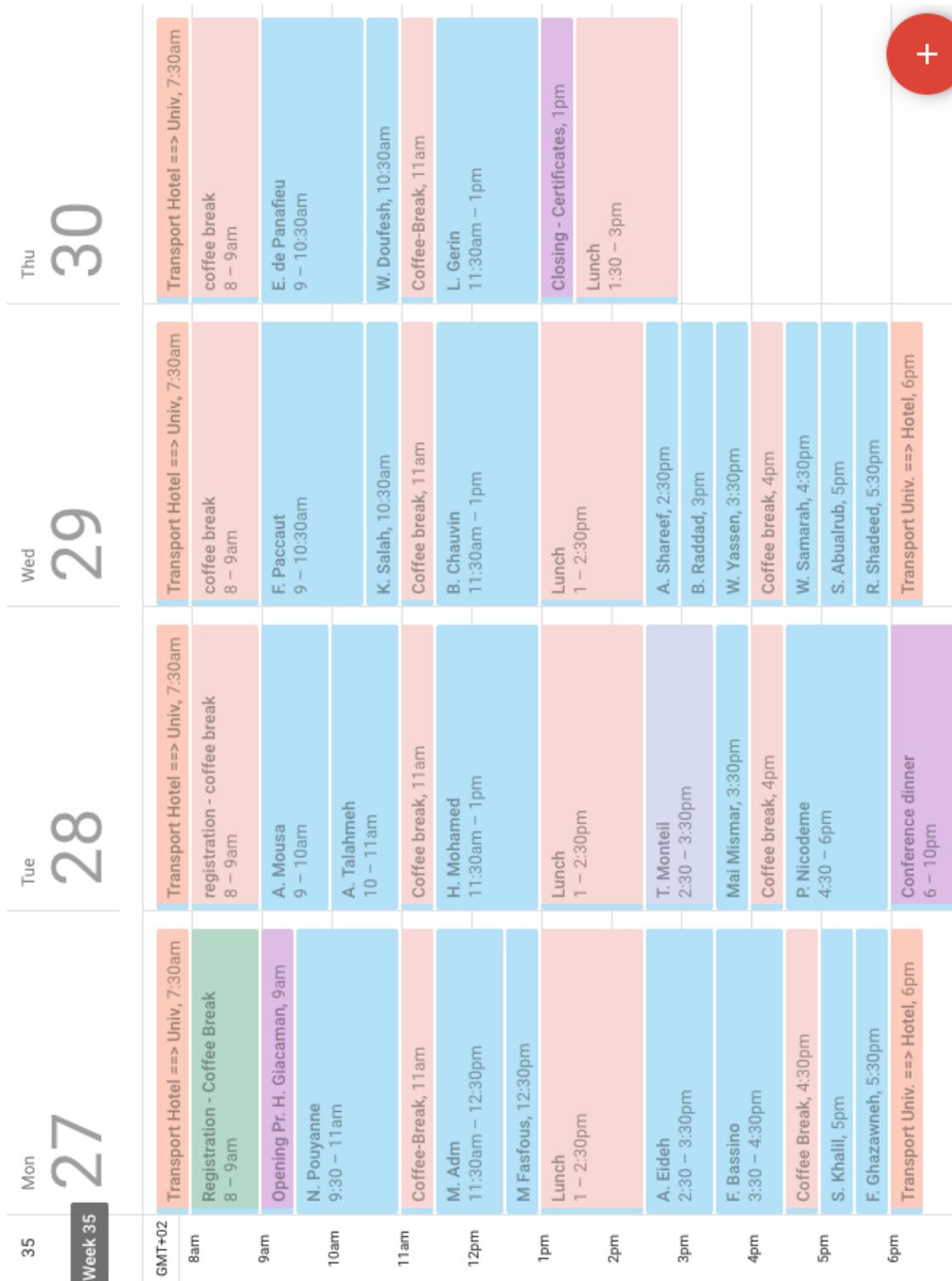



Figure 1: End schedule of the conference

1 Scientific Report

We had

- 7 talks of 90 minutes,
 - Brigitte Chauvin - *Binary Search Trees*
 - Lucas Gerin - *Uniform random permutations*
 - Hanene Mohamed - *Mean field analysis for inhomogeneous bike sharing systems*
 - Pierre Nicodème - *Height of discrete bridges and excursions*
 - Frédéric Paccaut - *An introduction to dynamical systems: basic definitions and examples*
 - Elie de Panafieu - *Analytic combinatorics of graphs*
 - Nicolas Pouyanne - *Enumeration of planar graphs*
- 6 talks of 60 minutes
 - Frédérique Bassino - *Random generation of graphs and trees*
 - Abdulkakeem Eideh - *Analysis of survey data under informative sampling*
 - Mohammad Adm - *On the zero forcing game and maximum nullity of matrices whose graph is acyclic or unicyclic with q negative eigenvalues*
 - Abdelrahim Mousa - *Geometric approaches and bifurcations in the dichotomous decision model*
 - A. Talahmeh - *Blow up in a nonlinear damped wave equation with variable exponents of non-linearity*
 - Thierry Monteil - *Introduction to the computer algebra system SAGE*
- 10 student talks of 30 minutes
 - Sima Abualrub - *Determinants of Student Success at Birzeit University*
 - Walaa Doufesh - *Ideals on Skew Lattices*
 - Farida Ghazawneh - *Dynamics of piecewise isometries*
 - Sondos Khalil - *Numerical results with economic implications of a continuous time model*
 - Batool Raddad - *Dynamics and bifurcation of second and third order rational difference equations*
 - Khalid Salah - *An approximation of a longitudinal stochastic model*
 - Wisam Samarah - *A Mathematical Solution to an Unstable Economic Environment: A Case Study of the Palestinian Economy*
 - Rasha Shadeed - *Multicollinearity*
 - Hind Sweis - *Solving Local Fractional Fredholm Integral Equation of the Second Kind with Separable Kernel*
 - Walaa Yassen - *Using Symmetries To Solve Some Difference Equations*

Most of the talks were well prepared and of excellent quality.

At the beginning, the students seemed to be a bit shy and stay in the back of the conference room, but later they went to the front seats.

Most students were proficient in English, although a few had some difficulties. It should be noticed that, at Birzeit University, the mathematics courses are taught in English.

Abdelrahim Mousa, Brigitte Chauvin, Nicolas Pouyanne and Pierre Nicodème were briefly received by the Vice-President of Academic Affairs of the Birzeit University Henry Giacaman. We had then an explanation of the overwhelming number of female students in mathematics; the male students prefer to go to courses linked to business, since the wages of teachers are very low. The department of science policy was to downgrade the level required for admission to get enough students. There remain however some excellent students who wish to do a PhD abroad, in the US or Europe, since there is presently no PhD programs of mathematics in Palestine.

It would be favorable that the net of Palestinian Mathematicians would be reinforced. Abdelrahim Mousa did his best to communicate the information regarding the conference, but unfortunately some Palestinian colleagues from other universities told Abdelrahim that they were not informed of the announcement of the conference in their university.

Material conditions of many Palestinian students. It is noteworthy that many Palestinian students work also as teachers during their studies. Furthermore, some presenters were attending at the time of their presentation and others were attending in the afternoon after finishing their work.

2 Outcome of the conference

We all agree with the remarks sent by Abdelrahim Mousa to the President of the university. Here they are.

“I believe this conference was very successful. I state below the important outcomes of our Birzeit 2018 Conference:”

- *“There were many mathematical and statistical talks (one hour and half talk/one hour talk/half an hour talk) presented by the French Professors, Palestinian Professors and Master Students with rich scientific discussions based on the topics that were presented, so mathematical and statistical research were motivated and encouraged.”*
- *“Bachelor and Master Students benefited from this conference as they got to see new topics in Applied Mathematics and Statistics when they applied to real life to solve problems in industrial economics and science.”*
- *“Such topics include Ordinary and Partial Differential Equations; Game Theory; Stochastic Applications to Mathematical Finance and Life Insurance; Non-linear Recurrences; Randomness; Probability Theory; Statistics with a special focus on random graphs, trees, and random walks; Contributions related to algorithms on*

graphs, random graphs, trees, statistical criteria, software and hardware programming with architecture were applied; Methods used go from combinatorics and singularity analysis to large scale computer algebra; Interplay between discrete mathematics and probability theory.”

- “A tutorial¹. for the freeware computer algebra system SAGE was scheduled during the conference.”
- “International research centers (like CIMPA) were announced in the closing sections to support future events.”
- “The relationships between the French and Palestinian Universities (and collaborators) have been strengthened with new connections.”
- “High possibility for some of our excellent master students in mathematics to joint PhD programs in France.”

3 Material aspects

The conference has been held in excellent material conditions:

- large conference room with air conditioning,
- double up and down board; large screen for digital talks

All the participants are very grateful to Abdelrahim Mousa who, besides being an excellent mathematician, organized wonderfully the conference.

They are also extremely **grateful to all the sponsors** of the conference, the French Consulate of Jerusalem and Campus France, Birzeit University, Paris13 University, Saclay and Versailles Universities, Paris-Nanterre University, École polytechnique, ODK European project, Nokia Bell labs, IMU-Berlin and Fundacio Mathematica of Netherlands.

4 Social events

In Day 2, we had an excellent dinner² in the restaurant *Sangria* next to the Royal Court Hotel where Palestinians and Frenchs presenters were accommodated.

After the last session and the last lunch, Abdelrahim led our bus to a road alongside to a Palestinian refugee camp of 1948 called Al Jalazone camp; this camp, like all Palestinian refugee camp is poor and get little supply of water. A few hundred meters away, there is a rich Jewish settlement, true testimony of the violence of the occupation of West Jordan and Gaza by the Israelis.

In Day 4, we paid also a visit to the Arafat Museum in Ramallah which exhibits in remarkable way the history of the struggle of the Palestinian people for its liberty.

¹The machine-demo by Thierry Monteil of the use of the freeware SAGE has been very appreciated by the academics and by the students; Thierry stayed in Palestine after the conference to do other demos of SAGE in Nablus and Hebron.

²Please note that the dinner was offered by Birzeit university with exception of the alcoholic drinks.

5 Final budget - All values converted in Euros

Expenses		Input funds			
Palestinians+Frenchs		Source	Used	Granted	Excess
coffee-breaks	1100				
Taxis	162				
Conference dinner	68				
20 T-shirts	200	IMU	790	1500	710
Khaled Salah ^a	50	Fundacio	790	1500	710
<i>TOTAL I</i>	1580		1580	3000	1420
<i>TOTAL II - lunches</i>	1900	LMV	1900	2000	100
Conference dinner	475				
3 posters	155				
Transport	285				
Printing + Other	300				
<i>TOTAL III</i>	1215	Birzeit University	1215	1200	
Hotel Palestinians	1462	LIPN Paris13		2000	
		Math-Stic Paris13		1500	
<i>TOTAL IV</i>	1462		1462	3500	2038
TOTAL I+II+III+IV	6157				
Frenchs		Source	Used	Granted	Excess
F. Bassino	1475				
L. Gerin	1475				
P. Nicodème	1475				
F. Paccaut	1475	Campus France	5900	5900	
<i>Total I</i>	5900		5900	5900	
N. Pouyanne	1475				
B. Chauvin	1475	Paris-Saclay FMJH		3000	
<i>Total II</i>	2950		2950	3000	50
H. Mohamed	1475	Paris13 International	1475	1500	25
T. Monteil	1475	ODK-Europe	1475	1475	
E. de Panafieu	1475	Nokia-Bell	1475	1475	
TOTAL FRENCHS	13275		13275		
Grand TOTAL			19432		

^aWe granted 50 Euros to Khaled Salah for his dinners during the conference.

7 Some more photos



Left to Right: A. Mousa, ??, E. Marne and O. Dufour of the French Consulate of Jerusalem, P. Nicodème