

# RUTCOR 1983-1987

## Those were the days...

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# Disclaimer...

- Mostly based on personal reminiscences
- Any resemblance to real events or people is purely coincidental

# Early days...

- Creation of RUTCOR: 1982
- Purpose: to launch and run an interdisciplinary Ph.D. Program in operations research, building on existing strengths.

# Faculty members

Fred Roberts: one of Rutcor's founding fathers – graduate director

Susan Albin, Douglas Blair, Mike Grigoriadis, Jeff Kahn, Mike Saks, Robert Vichnevetsky,...

# Early days...

- First academic year: 1983-1984
- Peter Hammer was hired as Director
- Peter and his family moved from Waterloo to New Jersey in early September 1983.

# Early days...

- I moved in at the end of August 1983 (for a one-year visit...)
- Took a course on perfect graphs with Fred (out of Marty's book)
- Very first assignment: unpack Peter's moving boxes!!
- Shared an office for a few days with John Nash Jr. (Rutgers Ph.D., math 1985)

# Other interesting facts...

In 1983:

- 1 dollar = 1.25 euro
- (today: 1 euro = 1.35 dollar)

# Other interesting facts...

In 1983:

- Ronald Reagan was President



# Other interesting facts...

In 1983:

- Barack Obama was 22 year old



# New Brunswick in 1983: George Street





# New Brunswick in 1983: Raritan Avenue



# RUTCOR was in the Hill Center



# First cohort of students

Miklos Biró (Hungary)

Mihály Hujter (Hungary)

- Left after qualifying exam; doctorate and professorship in Budapest;

Lisa X (USA)

- Left with master's degree (math); whereabouts??

# Lisa X at her desk at Rutcor



# More students...

Joined Rutcor in the next few years:

Lu Shi-Hui (China → USA)

Frédéric Mafray (France → CNRS, Grenoble, F)

Caterina de Simone (Italy → CNR, Rome, I)

Garth Isaak (USA → Lehigh University, PA)

Isabelle Salaün (France → Natixis, F)

Ansuman Bagchi (India → Merck, NJ)

Guoli Ding (China → Louisiana State Univ.)

Chi Wang (China → ?)

Many others...

# Faculty members

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# Faculty members

Joined shortly thereafter (before 1987):

Bahman Kalantari (1984), András Prékopa (1985), Paul Seymour (~1985), Vašek Chvátal (~1986), Endre Boros (~1986), Pierre Hansen, Dave Shanno (~1987), Lou Billera, Al Williams, Leonid Khachiyan, Uri Rothblum, etc.

# Ph.D. program

Much like today's...

Mandatory courses in LP (Bazaraa-Jarvis), networks and combinatorial optimization (Papadimitriou-Steiglitz), mathematical modelling (Roberts), nonlinear programming (McCormick), stochastic processes (Prékopa), numerical analysis,...

## 1983-1987: OR on the move...

### Metaheuristics:

- the word « metaheuristic » did not exist in 1983
- simulated annealing : Kirkpatrick, Gelatt and Vecchi (1983), Černý (1985)
- tabu search: Glover (~1986), Hansen (~1986 : application to maximum satisfiability problems)

## 1983-1987: OR on the move...

### Karmarkar's algorithm (1984):

- Yet another polynomial-time algorithm for LP!
- Numerous developments on interior-point methods; renewed interest in LP
- Dave Shanno's work (with Lustig and Marsten): Beale-Orchard-Hayes prize

## 1983-1987: OR on the move...

### Graph minors :

- Robertson and Seymour published the first of 20-some papers on graph minors in 1983.
- Paul Seymour taught several classes on this (and other) topics at Rutcor between 1983 and 1987.

1983-1987: OR on the move...

Many developments about monotone circuit complexity : Alon, Boppana, Hastad, Razborov,...

## 1983-1987: OR on the move...

Also, at Rutgers:

- Jeff Kahn and Mike Saks' work on evasiveness
- András Prekopá: Boole-Bonferroni inequalities
- Fred Roberts: measurement theory
- Peter Hammer: Logical Analysis of Data etc.

# RUTCOR: The place to be...

A constant flow of visitors: among the  
« regulars »

Egon Balas, Claude Benzaken, Claude Berge,  
Paul Erdős, Giorgio Gallo, Marty Golumbic,  
Ron Graham, Pierre Hansen, Alan Hoffman,  
Toshi Ibaraki, Bernard Korte, Jan Karel  
Lenstra, Silvano Martello, Michel Minoux,  
Alexander Rinnooy Kan, Uri Rothblum, Lex  
Schrijver, Bruno Simeone, Dominique de  
Wera,...

# ARIDAM

**ARIDAM: Advanced Research Institutes in Discrete Applied Mathematics**

- 3-week (then, 2-week) workshops
- combination of lectures on advanced topics and contributed presentations
- mix of senior and junior researchers

**Main lecturers: Bollobas, Jeroslow, Karp, Klee, Lawler, Tarjan, Welsh...**

# ARIDAM

- ARIDAM I: 1986

7 participants examine E.R. Swart's paper claiming a proof that  $P=NP$ .

- ARIDAM IV: Tiananmen Square - petition

- ARIDAM VII: 1992

A great place to meet people and to create one's scientific network (still connected after 20 years).

RUTCOR: The place to be...

RUTCOR 1983-1987: a very exciting place for a young doctoral student !!

Due to a large extent to Peter Hammer's vision and energy, and to his ability to gather people around him.

