



# International Research Training Group 1529 Mathematical Fluid Dynamics

## IRTG 1529 Research Seminar Proof Mining and Nonlinear Analysis

TU Darmstadt, February 26 – 28, 2014

Location: S215/234

### Speakers:

**David Ariza Ruíz (Seville):**

Rates of asymptotic regularity for firmly nonexpansive mappings

**Miroslav Bacak (Leipzig):**

The asymptotic behavior of a semigroup on generated by a nonexpansive map

**Jesus García Falset (Valencia):**

Existence and uniqueness result to Rotenberg's model for growing cell population

**Daniel Günzel (Darmstadt):**

Connecting ultrapowers of metric structures and proof mining

**Ulrich Kohlenbach (Darmstadt):**

Proof mining: a survey

**Daniel Körnlein (Darmstadt):**

Rates of metastability for iterations of accretive and nonexpansive mappings

**Angeliki Koutsoukou-Argyragi (Darmstadt):**

Proof mining for Cauchy problems generated by accretive operators

**Laurențiu Leuştean (Bucharest):**

Effective methods in geodesic spaces

**Genaro López Acedo (Seville):**

Algorithms in convex minimization problems

**Adriana Nicolae (Bucharest):**

Asymptotic behavior of averaged and firmly nonexpansive mappings in geodesic spaces



For further information please visit:

[www.mathematik.tu-darmstadt.de/~igk/events.php](http://www.mathematik.tu-darmstadt.de/~igk/events.php)

or contact: Ulrich Kohlenbach, FB Mathematik, TU Darmstadt,  
Schlossgartenstr. 7, D-64289 Darmstadt, Germany,  
[kohlenbach@mathematik.tu-darmstadt.de](mailto:kohlenbach@mathematik.tu-darmstadt.de)

Deutsche  
Forschungsgemeinschaft

DFG

# Program of IRTG 1529 Research Workshop

(<http://www.mathematik.tu-darmstadt.de/~igk/events.php>)

## Proof Mining and Nonlinear Analysis

Department of Mathematics, TU Darmstadt, S215/234

February 26-28, 2014

### Wednesday, February 26

#### Morning Session

- 9.00 - 10.00 Welcome and Informal Discussion: G. Lopez-Acedo, U. Kohlenbach
- 10.00 - 11.00 U. Kohlenbach: Proof Mining: A Survey and Discussion
- 11.00 - 11.30 Informal Discussion and Coffee Break
- 11.30 - 12.30 L. Leuştean: Effective Methods in Geodesic Spaces

LUNCH

#### Afternoon Session

- 14.30 - 15.30 A. Nicolae: Asymptotic Behavior of Averaged and Firmly Nonexpansive Mappings in Geodesic Spaces
- 15.30 - 16.00 Informal Discussion and Coffee Break
- 16:00 - 17:00 D. Ariza-Ruíz: Rates of Asymptotic Regularity for Firmly Nonexpansive Mappings

### Thursday, February 27

#### Morning Session

- 10.00 - 11.00 J. García-Falset: Existence and Uniqueness Result to Rotenberg's Model for Growing Cell Population
- 11.00 - 11.30 Informal Discussion and Coffee Break
- 11.30 - 12.15 A. Koutsoukou-Argyragi: Proof Mining for Cauchy Problems generated by Accretive Operators

LUNCH

#### Afternoon Session

- 14.15 - 15.15 M. Bacak: The Asymptotic Behavior of a Semigroup generated by a Nonexpansive Map
- 15.15 - ? Informal Discussion

# Friday, February 28

## Morning Session

10.00 - 11.00 G. López-Acedo: Algorithms in Convex Minimization Problems

11.00 - 11.30 Informal Discussion and Coffee Break

11.30 - 12.15 D. Körnlein: Rates of Metastability for Iterations of Accretive and Nonexpansive Mappings

## LUNCH

## Afternoon Session

14.15 - 15.00 Daniel Günzel: Connecting Ultrapowers of Metric Structures and Proof Mining

15.00 - 15.30 Informal Discussion and Coffee Break

15.30 - 16.15 E. Neumann: Computational Problems in Metric Fixed Point Theory and Their Weihrauch Degrees

16.15 - ? Open Problems