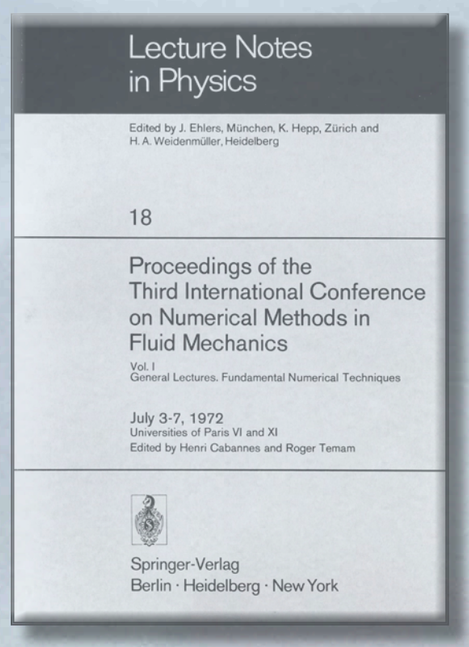
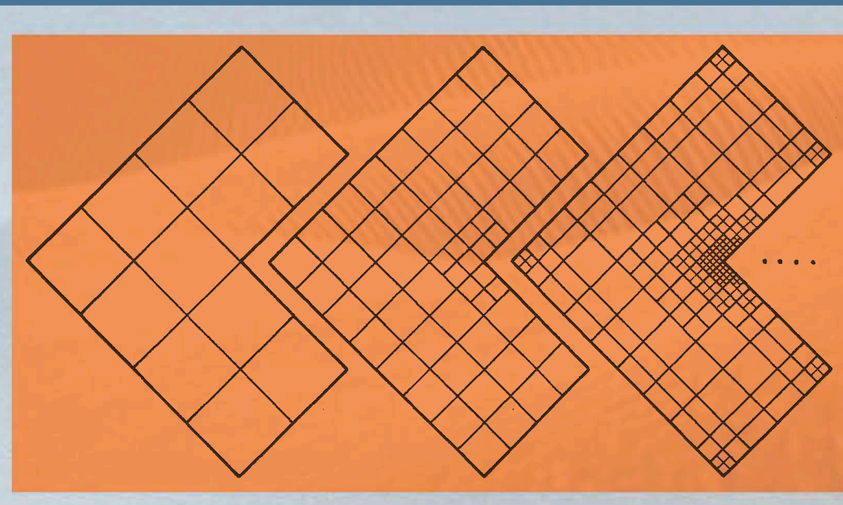
מכון ויצמן למדע
WEIZMANN INSTITUTE OF SCIENCE

Weizmann Workshop 2013
on Multilevel Computational Methods and Optimization





MULTI-LEVEL ADAPTIVE TECHNIQUE (MLAT)

FOR FAST NUMERICAL SOLUTION TO BOUNDARY VALUE PROBLEMS

Achi Brandt

Weizmann Workshop 2013
Multilevel Computational Methods and Optimization
Lopatie Center, Weizmann Institute of Science, Rehovot, Israel
April 30, 2013 until May 02, 2013

This workshop brings together world-class experts from many different countries to exhibit and discuss recent research on multilevel computational methods for optimization in a wide variety of topics and applications. Talks will cover diverse disciplines, including physics, biology, chemistry, economics, environment, earth sciences, computer science, and engineering. This workshop is an occasion to celebrate the publication of the 40th anniversary of Achi Brandt's seminal paper on multi-level techniques.
Entrance is free but registration is required. To register please visit the conference website:
http://www.wisdom.weizmann.ac.il/April2013/WeizmannProjectHome.html

The Weizmann Workshop 2013 is generously sponsored by:
The Weizmann Institute of Science - Conferences and Schools Support Program - WIS-CSP Foundation

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Achi Brandt

Applied Mathematics Department, Weizman Institute, Rehovot, Israel

In most numerical procedures for solving partial differential equations, the analyst first discretizes the problem, choosing an appropriate operator on a finite-dimensional approximation space, and then devises a numerical process to (nearly) solve the discrete equations. A new technique (MLAT) is proposed, in which discretization and solution processes are intermixed, so as to make both of them much more effective. General boundary-value problems in general domains can be treated by this technique. Similar approach should also be worked out for evolution problems, with the same general aim at automatic codes that eliminate redundancies in both discretization and solution processes.

Organizers:

- Ronen Basri (Weizmann Institute, Dept. of Computer Science and Applied Mathematics)
- Alfio Borzì (University of Würzburg, Chair of Scientific Computing)
- James Brannick (Pennsylvania State University, Mathematics Department)
- Meirav Galun (Weizmann Institute, Dept. of Computer Science and Applied Mathematics)
- Cornelis W. Oosterlee (CWI - Center for Mathematics and Comp. Science, Amsterdam, and TU Delft)
- Irad Yavneh (Technion - Israel Institute of Technology, Computer Science Department)

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