



**Workshop:** *Adaptive and Multilevel Methods for Partial Differential Equations*

**When:** *November 13-14, 2009*

**Where:** *UC San Diego in La Jolla, California*

**Purpose:** Adaptive and multilevel methods are two very successful classes of modern numerical methods for solving partial differential equations. A rich convergence theory has been developed for multilevel methods, and recently there have been major advances in the development of convergence theory for adaptive methods. While the theories for both methods have been studied essentially independently for several decades, remarkable similarities have begun to emerge. The purpose of the workshop is to bring together active researchers in these two areas to germinate additional advances.

The workshop is being held in honor of Randolph Bank's 60th Birthday, and is being hosted by the Center for Computational Mathematics at UC San Diego. We will also be celebrating the retirement of James Bunch, who started the numerical analysis group at UCSD in the 1970's. There will be a conference dinner on Friday evening (November 13).

**Structure:** The workshop will consist of about twelve 40-minute talks, taking place between 9am and 5:30pm on Friday November 13, and between 9am and 12:30pm on Saturday November 14. Confirmed invited speakers include:

- Andrea Bonito (Texas A&M University)
- Long Chen (University of California, Irvine)
- Alan Demlow (University of Kentucky)
- Don Estep (Colorado State University)
- Wolfgang Hackbusch (Max-Planck-Institute, Leipzig)
- Ralf Kornhuber (Freie Universitat Berlin)
- Jeff Owall (University of Kentucky)
- Ridgway Scott (University of Chicago)
- Gabriel Wittum (Universitat Frankfurt)
- Jinchao Xu (Penn State University)
- Harry Yserentant (Technische Universitat Berlin)
- Ludmil Zikatanov (Penn State University)

**Workshop website:** <http://ccom.ucsd.edu/~reb60/>

**Organizing committee:** The CCoM Faculty and Postdocs

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University of California, San Diego  
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# ***Adaptive and Multilevel Methods for Partial Differential Equations***

13-14 November 2009, UC San Diego in La Jolla, California

## **Schedule of Talks to be Held in 2402 AP&M**

### ***Friday (November 13):***

- 8:30am- 9:00am Coffee (in 2402 AP&M)
- 9:00am- 9:45am Wolfgang Hackbusch *How Multigrid Started*
- 9:45am-10:30am Gabriel Wittum *Models, Methods and Applications - all about multigrid*
- 10:30am-11:00am Coffee (in 2402 AP&M)
- 11:00am-11:45am Ludmil Zikatanov *Subspace Correction Methods for discontinuous Galerkin approximations of elliptic problems*
- 11:45am-12:30pm Jeff Ovall *A framework for robust error estimation and convergence enhancement for elliptic eigenvalue problems*
- 12:30pm- 2:00pm Lunch (in 2402A AP&M)
- 2:00pm- 2:45pm Andrea Bonito *Multigrid Algorithms for Geometrically Consistent Mesh Modifications*
- 2:45pm- 3:30pm Alan Demlow *Convergence of adaptive FEM for controlling local energy errors*
- 3:30pm- 4:00pm Coffee (in 2402 AP&M)
- 4:00pm- 4:45pm Ridgway Scott *The modulation of the dielectric effect in protein-ligand interactions*
- 4:45pm- 5:30pm Don Estep *Nonparametric Density Estimation for Randomly Perturbed Elliptic Problems*
- 6:00pm-10:00pm Dinner at the Faculty Club

### ***Saturday (November 14):***

- 8:30am- 9:00am Coffee (in 2402 AP&M)
- 9:00am- 9:45am Harry Yserentant *Eigenvalues, Eigenfunctions, Adaptivity*
- 9:45am-10:30am Ralf Kornhuber *Hierarchical Error Estimates for Elliptic problems*
- 10:30am-11:00am Coffee (in 2402 AP&M)
- 11:00am-11:45am Long Chen *From Vertex-Centered to Cell-Centered Finite Volume Methods for Elliptic Problems*
- 11:45am-12:30pm Jinchao Xu *Multigrid and Adaptivity: From Theory to Practice*
- 12:30pm- Explore San Diego

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**Registered Participants**

- 1) Alex Alekseenko <alexander.alekseenko@csun.edu>
- 2) Randolph Bank <rbank@ucsd.edu>
- 3) Thomas Bewley <thomas.bewley@gmail.com>
- 4) Alex Bilik <abilik@math.ucsd.edu>
- 5) Andrea Bonito <bonito@math.tamu.edu>
- 6) James Brannick <brannick@psu.edu>
- 7) Alex Brik <abrik@math.ucsd.edu>
- 8) James Bunch <jbunch@ucsd.edu>
- 9) Sam Buss <sbuss@math.ucsd.edu>
- 10) Long Chen <chenlong@math.uci.edu>
- 11) Li-Tien Cheng <lcheng@math.ucsd.edu>
- 12) Alan Demlow <demlow@ms.uky.edu>
- 13) Chris Deotte <cdeotte@ucsd.edu>
- 14) Todd Dupont <dupont@cs.uchicago.edu>
- 15) Moe Ebrahimi <maebrahi@math.ucsd.edu>
- 16) Don Estep <estep@math.colostate.edu>
- 17) Michael Ferry <mwferry@math.ucsd.edu>
- 18) Philip Gill <pgill@ucsd.edu>
- 19) Wolfgang Hackbusch <wh@mis.mpg.de>
- 20) Bill Helton <helton@math.ucsd.edu>
- 21) Michael Holst <mjhsan@gmail.com>
- 22) Xuehai Huang <xuehai.huang@yahoo.com.cn>
- 23) Kerry Key <kkey@ucsd.edu>
- 24) Ralf Kornhuber <kornhube@mi.fu-berlin.de>
- 25) Petr Krysl <pkrysl@ucsd.edu>
- 26) Vyacheslav Kungurtsev <vkungurt@math.ucsd.edu>
- 27) Julius Kuti <jkuti@ucsd.edu>
- 28) Melvin Leok <mleok@math.ucsd.edu>
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- 30) Jichun Li <jichun@unlv.nevada.edu>
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- 32) David Meyer <dmeyer@math.ucsd.edu>
- 33) Nick Miller <nmmiller@ucsd.edu>
- 34) Hieu Nguyen <htn005@math.ucsd.edu>
- 35) Jiawang Nie <njw@math.ucsd.edu>
- 36) Jeff O'Connell <jovall@ms.uky.edu>
- 37) Sara Pollock <snpolloc@math.ucsd.edu>
- 38) Joey Reed <j2reed@math.ucsd.edu>
- 39) Jeff Remmel <jremmel@ucsd.edu>
- 40) Ridgway Scott <ridg@cs.uchicago.edu>
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- 42) Tatiana Shingel <tshingel@math.ucsd.edu>
- 43) Donald Smith <drsmith@math.ucsd.edu>
- 44) Ivar Stakgold <stakgold@math.udel.edu>
- 45) Pengtao Sun <sunpengtao@gmail.com>
- 46) Ryan Szymowski <rszymows@math.ucsd.edu>
- 47) John Weare <jweare@ucsd.edu>
- 48) Gabriel Wittum <wittum@techsim.org>
- 49) Jinchao Xu <xu@math.psu.edu>
- 50) Harry Yserentant <Yserentant@math.TU-Berlin.DE>
- 51) Bin Zheng <bzheng@math.umd.edu>
- 52) Yunrong Zhu <zhu@ccom.ucsd.edu>
- 53) Ludmil Zikatanov <ltz@math.psu.edu>

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**Workshop Hotels**

Del Mar Inn  
 720 Camino Del Mar  
 Del Mar, California USA  
 Phone: 1-858-755-9765  
 Toll-free: 1-800-451-4515  
 UCSD Visitor Rates: \$69 (approx)

Best Western Stratford Inn, California  
 710 Camino Del Mar  
 Del Mar, CA 92014  
 Phone: 1-858-755-1501  
 Fax: 1-858-794-4055  
 Toll-free: 1-888-478-7829  
 UCSD Visitor Rates: \$89 (approx)

**Campus Map**

