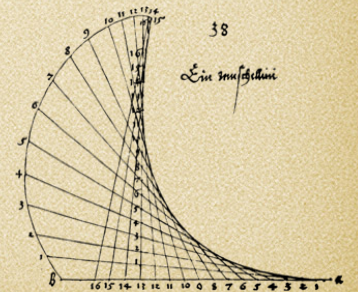


Multi-Grid Prize

2019

Gabriel Wittum
IMG Committee Chair

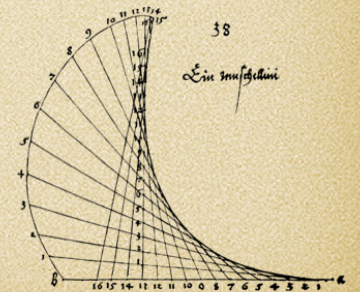


Dioscuri-Twins: Castor and Pollux



Greek krater ca. 460 BC

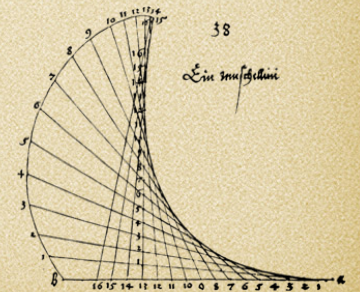
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Dioscuri-Twins: Castor and Pollux



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IMG Committee Chair



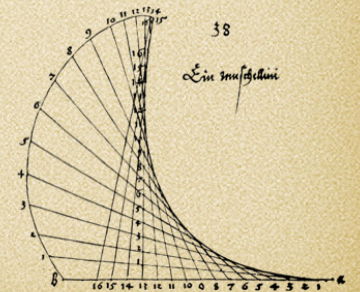
Dioscuri: Castor and Pollux



A B C D E F G H I J K L M N O P Q R S T U V W X Y Z



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Dioscuri: Castor and Pollux

R. E. Bank, H Yserentant: On the convergence of adaptive feedback loops.
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R. E. Bank, H. Yserentant: A note on interpolation, best approximation, and the saturation property,
Numer. Math. 131 (2015), 199-203.

R. E. Bank, H. Yserentant: On the H^1 -stability of the L_2 -projection onto finite element spaces,
Numer. Math. 126 (2014), no. 2, 361-381.

R. E. Bank, H. Yserentant: Multigrid convergence: a brief trip down memory lane,
Comput. Vis. Sci. 13 (2010), no. 4, 147–152.

R. E. Bank, B. D. Welfert, H. Yserentant, A class of iterative methods for solving saddle point problems,
Numer. Math. 56 (1990), no. 7, 645–666.

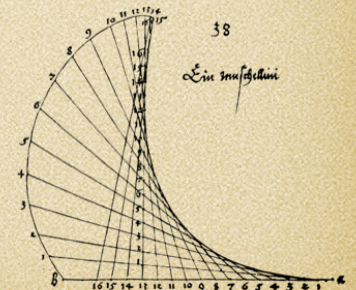
R. E. Bank, H. Yserentant, Some remarks on the hierarchical basis multigrid method,
Domain decomposition methods (Los Angeles, CA, 1988), 140–146, SIAM, Philadelphia, PA, 1989.

R. E. Bank, T. F. Dupont, H. Yserentant, The hierarchical basis multigrid method,
Numer. Math. 52 (1988), no. 4, 427–458.

...



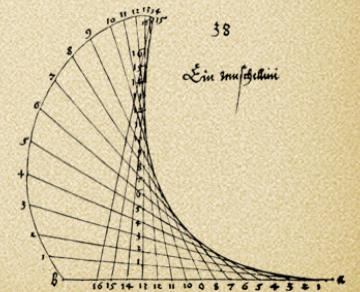
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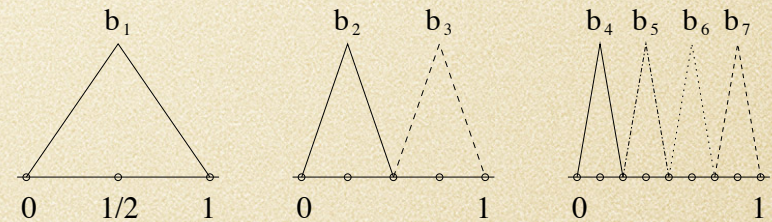
Harry Yserentant

- Deep insight into theory and problems
- Fundamental and seminal algorithms
- Elegance of proofs - math aesthetics

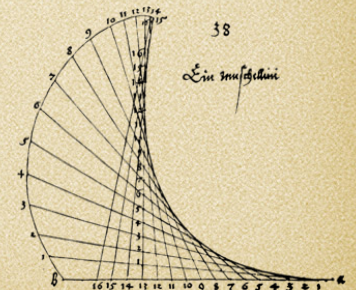


Algorithms

- Hierarchical Basis - $O(j)$
- HBMG
- Finite Mass Method
- ...



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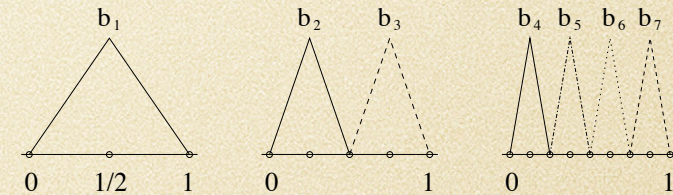
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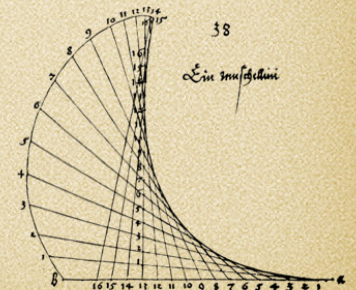


Applications

- elliptic problems
- Schrödinger equation
- Electronic wavefunctions - multiscale approximations
- ...

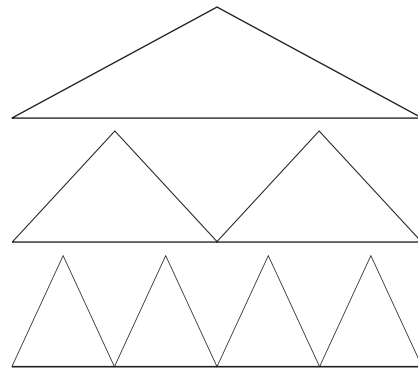


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2019
MULTI-GRID PRIZE



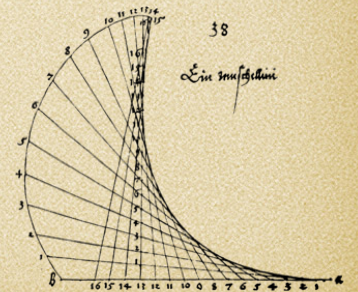
is awarded to
HARRY YSERENTANT

For his great achievements and seminal
contributions to Multi-Grid Methods

Kunming, August 2019
Gabriel Wittum, Chair of the IMG Committee



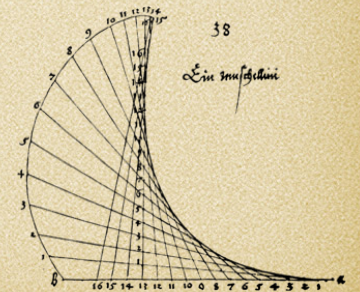
Gabriel Wittum
IMG Committee Chair



Randolph E. Bank



Gabriel Wittum
IMG Committee Chair



Randolph E. Bank

Theory, methods and practice

Theory:

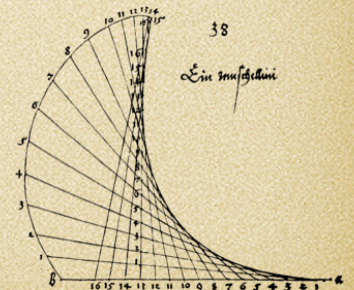
- Convergence proofs for **MG** and **DD**
- Error estimators

Algorithms:

- Adaptivity
- **HBMG**
- Parallel adaptive **MG**
- Multigraph method
- ...



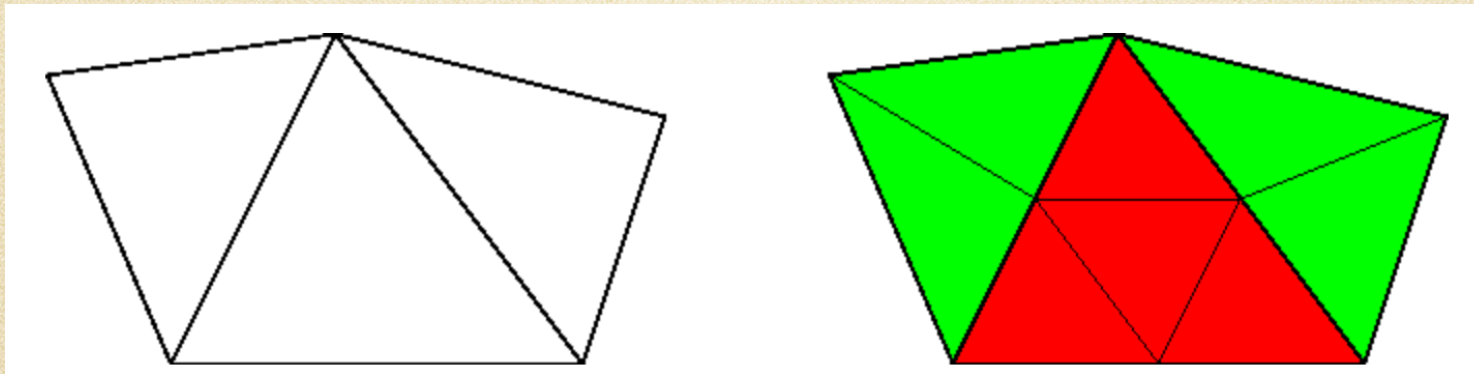
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Randolph E. Bank

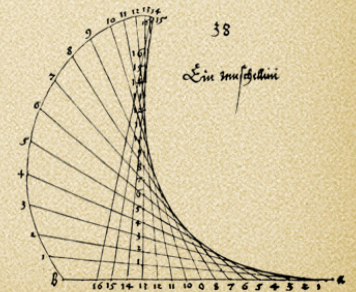
Software and applications

- **PLTMG** (13 versions)
- **Father of numerous adaptive FE codes**
UG, Dune, Deal II, Comsol, ...



Red - green refinement

Gabriel Wittum
IMG Committee Chair



Randolph E. Bank

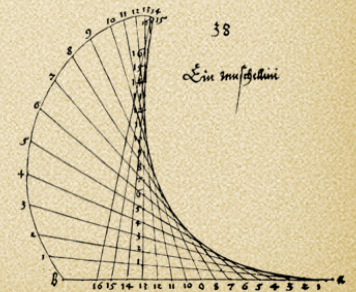


Software and applications

- **PLTMG** (13 versions)
- **Father of numerous adaptive FE codes**
UG, Dune, Deal II, Comsol, ...
- **Drift diffusion equation - adaptivity**
fast computation of chip design
- ...

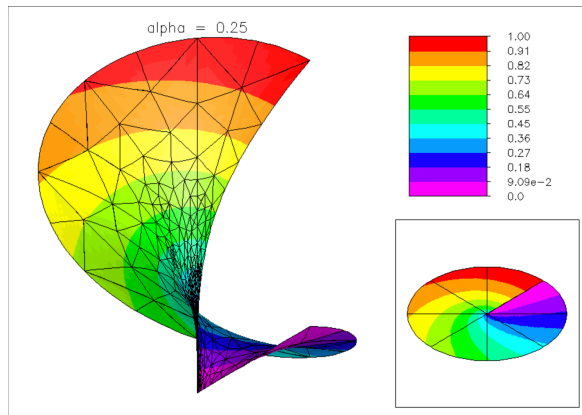


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