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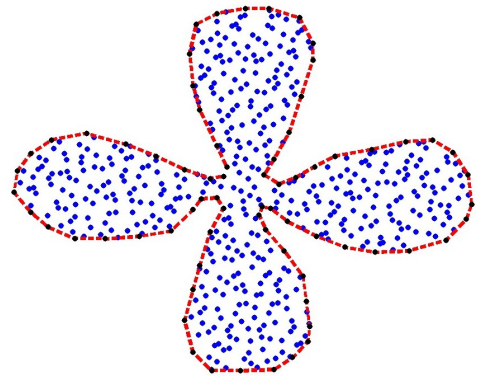
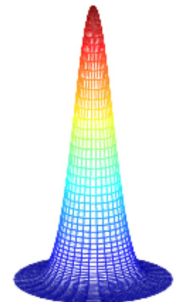
Thesis projects in radial basis function approximation



Radial basis function approximation

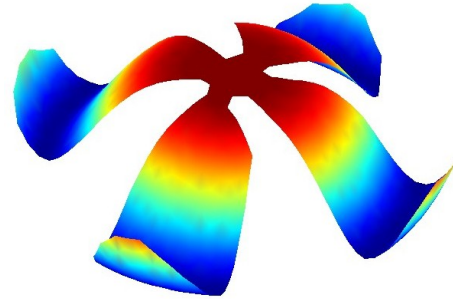
Given a PDE $\frac{\partial u}{\partial t} = \mathcal{L}u$
a domain Ω of any shape
and scattered nodes x_j



Let $u = \sum_{j=1}^{N} \lambda_j(t)\phi(\|x - x_j\|)$

Project suggestions

- Fractional derivatives and jump processes in finance
- Adaptive RBF–partition of unity methods



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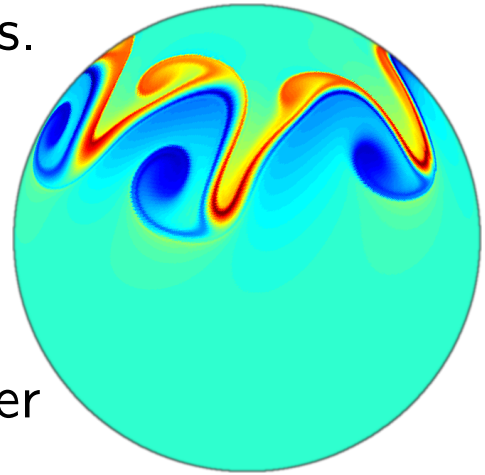
Thesis projects in task parallel programming

Task parallel programming

Main idea: Make it easy to write efficient, portable, parallel software.

Code: Write sequential code in terms of tasks with data accesses.

Execution: A run-time system infers data dependencies and schedules tasks to cores.



Potential implementation projects

- Parallel SVD kernel
- Partition of unity shallow water solver
- Radial basis function library

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