

Texas Tech University. Applied Mathematics Seminar.

## The "Peano framework" curve and its application

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ABSTRACT. This talk is mainly about the Peano space filling curve and its application as a mesh for PDE framework.

The space filling curves have in general different mathematical properties, but we are interested in properties which make the underlying mesh cache efficient and high-performance. Beside Hilbert and Sierpinski curve the Peano curve provides an efficient  $N$  dimensional mesh support.

In our research group we developed a general "Peano" framework, which allows the development of solvers for different applications. Among them are Navier-Stokes, Lattice-Boltzmann, and Fluid Structure Interaction.

Finally we will discuss the results and further challenges of the Peano mesh integration into the Sundance PDE toolbox.