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Research Areas:
- Computational Science
- Numerical Analysis
- Hyperbolic systems of conservation laws
- Space-time discontinuous Galerkin schemes
- Entropy stability

Which scientific vision about our challenging future do you have in terms of upcoming problems, models and solutions?
The larger and larger computing power provided by modern machines allows us to simulate more and more complex problems. However, it is increasingly more difficult to employ these resources in an efficient manner, given the complicated heterogeneous design. It is our responsibility to use the computers that we have in a suitable way. Furthermore, one should not blindly trust the computed results. It is imperative to design reliable methods, which are able to quantify the errors. This will then answer the question „Are we solving the equations right?". However, the models need much more validation, in order to answer the equally important question „Are we solving the right equations?".

Can you explain in a few words how the mathematical regularities you investigate work and how these regularities contribute to our understanding of naturally predetermined processes?
Many flows of gases and liquids can be modelled by the Euler or the Navier-Stokes equations. However, the mathematical theory is not complete, especially for multidimensional flows. In addition, the flows are usually too complex to be computed analytically. Thus, the use of numerical methods to approximate these flows is inevitable. The development of accurate and reliable methods is essential and might lead to a better understanding of complex flows and phenomena like turbulence in general.