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**MythBusters: Smoothed Particle Hydrodynamics in astrophysics and engineering**

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I will attempt to bust some myths regarding smoothed particle hydrodynamics (SPH) - a mesh-free numerical method for solving the equations of fluid dynamics with wide application in astrophysics and engineering. Starting with the foundational principles of the method, namely how to discretise a fluid onto particles starting from the least action principle, I will discuss the strengths and weaknesses of the method. An extensive mythology has arisen over the years about particle methods, so I will try to separate myth from reality to show what is similar and what is different when using particle methods compared to more standard schemes. I will also discuss recent research highlights including the first observations of a newborn planet discovered with the help of SPH simulations.