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The global existence of solutions to the equations of motion of a viscous gas with an artificial viscosity. (English) Zbl 0724.76073

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The author investigates the equations of motion for a viscous, barotropic fluid which contains an artificial viscosity as an additional term. This term can be chosen to vanish if the density remains below a certain bound that can be prescribed arbitrarily. The main result states that the equations admit a weak solution on any finite interval of time. The proof uses a regularization in the spatial variables together with a discretization in time.

Reviewer: [J.Bemelmans \(Aachen\)](#)

MSC:

[76N10](#) Existence, uniqueness, and regularity theory for compressible fluids and gas dynamics

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[35Q30](#) Navier-Stokes equations

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