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Simple Model of a Detonating Gas for use with the Direct Monte-Carlo Simulation Technique

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The research on gaseous detonation has recently become a very important issue because of increasing importance of gaseous fuels. We propose to use the Direct Monte-Carlo Simulation technique, which is a very powerful tool for solving complex flow problems. We propose a very simple model of a molecular collision, which makes it possible to increase the thermal energy of a gas, which is similar to the processes in the flame. We show then, that this model can produce the wave, which has all the features, characteristic for a detonation wave.

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