Modeling of Self-Propagating Reactions:
Past Approaches and Future Directions

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Thus far, simplified homogeneous models of SHS processes have been proposed in order to evaluate their predictive capability against macroscopic quantities such as chemical conversion, front velocity, combustion temperature and thresholds for stable wave propagation. In this work, on the basis of the theoretical approach proposed by Stangle et al., a comprehensive mathematical model of SHS processes has been developed to quantitatively describe heterogeneous transport phenomena as well as microstructural evolution.