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$C_0$ -SEMIGROUPS WITH A PARAMETER AND THEIR APPLICATIONS IN  
KINETIC MODELS WITH SPATIAL TRANSPORT

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Many physical processes are driven by several mechanisms, each acting on separate groups of variables, with the remaining ones being parameters. Examples are offered by spatially inhomogeneous kinetic processes, where the latter, driven by an internal variable, such as mass or energy of interacting particles, occur against the backdrop of a moving medium. Thus, the evolution of the system is governed by the sum of two operators, one acting on the internal variable with the spatial variable occurring as a parameter, and the other conversely. We provide a simple criterion ensuring the existence of a  $C_0$ -semigroup describing the full process, and provide examples of fragmentation-coagulation equations with spatial diffusion or in a moving medium.

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