Dynamics of internal layers and diffusive interfaces

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Abstrak

Interfacial phenomena are commonplace in physics, chemistry, biology, and in various disciplines bridging these fields. They occur whenever a continuum is present which can exist in at least two different chemical or physical "states", and there is some mechanism which generates or enforces a spatial separation between these states. The separation boundary is then called an interface. In the examples studied here, the separation boundary, and its internal structure, result from the balance between two opposing tendencies: a diffusive effect which attempts to mix and smooth the properties of the material, and a physical or chemical mechanism which works to drive it to one or the other pure state.
This volume is unique in that the treatment of flames, as well as internal layer dynamics "including curvature effects", is more detailed and systematic than in publications. Mathematicians and natural scientists interested in interfacial phenomena, especially flame theory, the mathematics of excitable media, electrophoresis, and phase change problems, will find Dynamics of Internal Layers and Diffusive Interfaces exceptionally useful.