

## Applying Soft Matter Modelling to Industrial Processing

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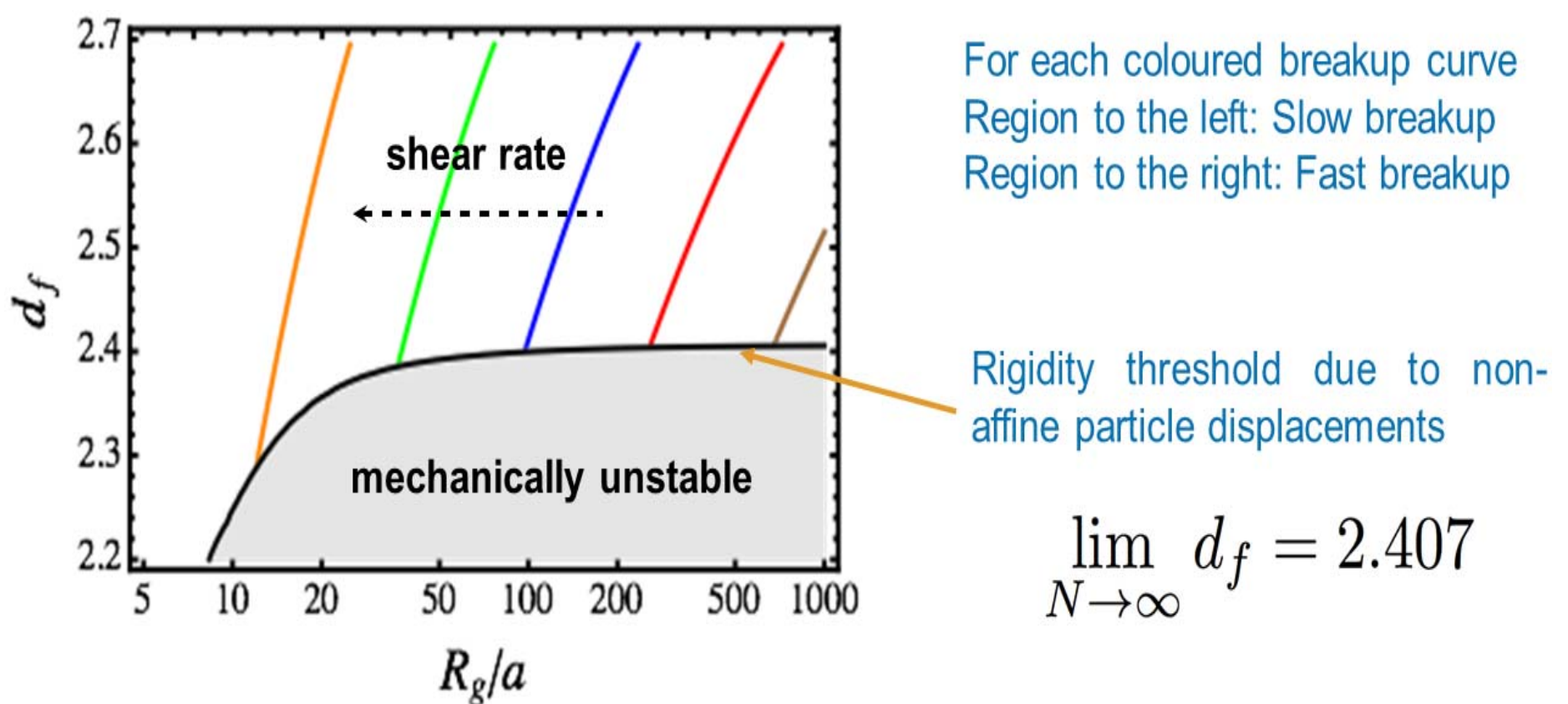


Fig.1: Fractal Aggregate Stability Map

This talk is mainly devoted to the modelling of kinetic processes in soft matter materials, an exercise complicated by the emergence of different phenomena at varying length scales. I will demonstrate that transport kernels are determined by the response of mesoscopic material morphologies to changing systematic environmental parameters. During my PhD, I applied this concept to study the formation and mechanical stability of colloidal aggregates in shear flows, the role of ion-specific hydration effects in the gelation of colloidal silica and charge transport in semicrystalline conjugated polymers. In my current role as an industrial postdoctoral researcher with Bayer, I will also outline how soft matter modelling can be used to optimise industrial processing.