

## SEASEN Session 2 (Coagulation-Fragmentation Models) Speaker 2

### Approximation of coagulation Smoluchowski type equations by conservation laws

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Smoluchowski's type equations are under a suitable change of variables non-local (integro-differential) conservation laws. They are intended to describe the aggregation phenomena (coagulation) ruled by binary collisions of clusters in a homogeneous diluted system. In some special cases (integral kernels of homogeneity one) instability and strong oscillation behaviours of some particular solutions were numerically observed [1]. We use approximations of the non-local equation by quasilinear dissipative-dispersive equations to study those behaviours.

This is joint work with N. Bedjaoui, J. M. C. Correia and F. P. da Costa.

### References

- [1] HERRMANN, M., NIETHAMMER, B. AND VELÁZQUEZ, J. J. L., *Instabilities and oscillations in coagulation equations with kernels of homogeneity one*, Quart. Appl. Math., LXXV(1), 105 - 130 (2017).