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10. Partial Differential Equations

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Asymptotic Behaviour of Solutions to a simplified Lifshitz-Slyozov Equation

In the theory of coarsening of dilute alloys, supersaturated solutions and mushy zones, a central role is played by a system of integro-differential equations developed by Lifshitz and Slyozov. The theory claims that all solutions approach a universal form for large values of time. For a particular case, we give a rigorous analysis of the asymptotic behaviour of solutions. The results show that a large number of possible asymptotics are possible. This is joint work with Oliver Penrose.