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Nota di contenuto	Cover -- Title page -- Chapter 1. Introduction -- 1.1. Smoluchowski's equation -- 1.2. Long-time behaviour and self-similarity -- 1.3. The equation for self-similar profiles -- 1.4. Finite mass, fat-tailed profiles and scale invariance -- 1.5. Existence and uniqueness of self-similar profiles -- 1.6. The constant kernel =2 -- 1.7. Assumptions on the kernel -- 1.8. Preliminary work and main result -- 1.9. The boundary layer at zero -- 1.10. Outline of the main ideas and strategy of the proof -- Chapter 2. Functional setup and preliminaries -- 2.1. Function spaces and norms -- 2.2. Transforming the equation to Laplace variables -- 2.3. Notation and elementary properties of \T -- Chapter 3. Uniqueness of profiles -Proof of Theorem 1.12 -- 3.1. Key ingredients for the proof -- 3.2. Proof of Theorem 1.12 -- Chapter 4. Continuity estimates -- 4.1. Proof of \cref{Lem:est:Arho,Lem:est:B2} -- 4.2. Proof of Proposition 3.5 -- 4.3. Estimates for differences -Proof of

Proposition 3.6 -- Chapter 5. Linearised coagulation operator -Proof of Proposition 3.7 -- Chapter 6. Uniform bounds on self-similar profiles -- 6.1. A priori estimates for self-similar profiles -- 6.2. Uniform convergence in Laplace variables -- 6.3. Proof of \cref{Prop:norm: boundedness,Prop:closeness:two:norm} -- Chapter 7. The boundary layer estimate -- 7.1. Boundary layer equation -- 7.2. Preliminary estimates -- 7.3. Proof of Proposition 3.10 -- Chapter 8. The representation formula for (,) -- 8.1. Analyticity properties -- 8.2. Proof of Proposition 7.11 -- Chapter 9. Integral estimate on \Qo(,) -- 9.1. Proof of Proposition 7.12 -- Chapter 10. Asymptotic behaviour of several auxiliary functions -- 10.1. Bounds on moments -- 10.2. Asymptotic behaviour of _{ } and -- 10.3. Regularity properties close to zero -- Appendix A. Useful elementary results.
Appendix B. The representation formula for -- B.1. Proof of Proposition 1.2 -- B.2. Integral estimates on \Ker -- Appendix C. Existence of profiles -- Acknowledgments -- Bibliography -- Back Cover.

Sommario/riassunto

"This article is concerned with the question of uniqueness of self-similar profiles for Smoluchowski's coagulation equation which exhibit algebraic decay (fat tails) at infinity. More precisely, we consider a rate kernel which can be written as The perturbation is assumed to have homogeneity zero and might also be singular both at zero and at infinity. Under further regularity assumptions on we will show that for sufficiently small there exists, up to normalisation of the tail behaviour at infinity, at most one self-similar profile. Establishing uniqueness of self-similar profiles for Smoluchowski's coagulation equation is generally considered to be a difficult problem which is still essentially open. Concerning fat-tailed self-similar profiles this article actually gives the first uniqueness statement for a non-solvable kernel"--