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The conditions for blow-up and global existence of solution for a degenerate and singular parabolic equation with a non-local source. (English) [Zbl 1479.35149](#)

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Summary: In this paper, we consider the degenerate and singular porous medium equation with a non-local source $v_\tau = (\xi^\beta (v^m)_\xi)_\xi + \int_0^a F(v^m) d\xi$. The conditions on the local and global existence of solutions are investigated. In the case of blow-up, the blow-up set is shown. Moreover, the uniform blow-up profile of the blow-up solution is given.

MSC:

- [35B44](#) Blow-up in context of PDEs
- [35K20](#) Initial-boundary value problems for second-order parabolic equations
- [35K67](#) Singular parabolic equations
- [35K65](#) Degenerate parabolic equations
- [35R09](#) Integro-partial differential equations

Keywords:

degenerate and singular parabolic equation; non-local source term; blow-up set; uni form blow-up profile

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