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Geometrical shock dynamics, formation of singularities and topological bifurcations of converging shock fronts[1] NUGZAR SURAMLISHVILI, JENS EGGERS, School of Mathematics, University of Bristol, UK, MARCO FONTELOS, Instituto de Ciencias Matematicas, C/Serrano 123, 28006, Spain —
We are concerned with singularities of the shock fronts of converging perturbed shock waves. Our considerations are based on Whitham's theory[2] of geometrical shock dynamics. The recently developed method of local analysis[3] is applied in order to determine generic singularities. In this case the solutions of partial differential equations describing the geometry of the shock fronts are presented as families of smooth maps with state variables and the set of control parameters dependent on Mach number, time and initial conditions. The space of control parameters of the singularities is analysed, the unfoldings describing the deformations of the canonical germs of shock front singularities are found and corresponding bifurcation diagrams are constructed.

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[2]G.B. Whitham, *Linear and Nonlinear Waves*, (John Wiley & Sons, 1974).
[3]J. Eggers and M. A. Fontelos, *Panoramas et Synthèses*, **38**, 69 (2013).

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