1015-35-255   **Ingo F. Witt*** (`ifw@imperial.ac.uk`), Department of Mathematics, Imperial College London, SW7 2AZ London, England. *Branching of conormal asymptotics along edges.*

To guarantee well-posedness for PDEs near edge singularities, conditions on the solutions are to be imposed along the edges, too. To do so, one needs an *a priori* good understanding of the possible conormal asymptotic expansions of the solutions to the PDEs under investigation near those edges. Here we classify the possible asymptotic expansions into asymptotic types and discuss both algebraic and order-theoretic characterisations of the latter. Compared to the situation when only conical singularities are present, the appearance of branch points for the asymptotics as the edge parameters vary constitutes an additional difficulty. The given classification is minimal in the sense that the resulting lattice of asymptotic types is generated by the proper asymptotic types, i.e., those asymptotic types that are annihilated by elliptic holomorphic Mellin symbols. This minimality is crucial for applications to non-elliptic as well as non-linear elliptic problems. More specifically, for a given proper asymptotic type we construct an elliptic holomorphic Mellin symbol realising this asymptotic type in the sense of annihilating it thus proving equivalence between the provided intrinsic characterisation of asymptotic types and their "intuitive meaning". (Received February 07, 2006)

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