TOWARDS MULTI-DIMENSIONAL LOCALISATION

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Localisation is a powerful tool in proving and analysing various geometric inequalities, including isoperimertic inequality in the context of metric measure spaces. Its multi-dimensional generalisation is linked to optimal transport of vector measures and vector-valued 1-Lipschitz maps. I shall present recent developments in this area: a partial affirmative answer to a conjecture of Klartag concerning partitions associated to 1-Lipschitz maps on Euclidean space, and a negative answer to another conjecture of his concerning the mass-balance condition for absolutely continuous vector measures. During the course of the talk I shall also discuss an intriguing notion of ghost subspaces related to the above mentioned partitions.