"Watermelon methods and inverse problems with partial data"

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Abstract: In this talk, I will present ideas coming from analytic microlocal analysis which can be applied to inverse problems with partial data. Kashiwara's Watermelon theorem partly describes the analytic singularities of a function supported on one side of a hypersurface, and can be used to prove Holmgren's theorem, as well as (some local versions of) Helgason's support theorem on the Radon transform. The method, which consists in extrapolating exponential decay of the FBI transform by the maximum theorem, can be applied to study the linearization of inverse problems for the Schrdinger equation with partial data, as well as to obtain stability estimates for the nonlinear problem in the setting of Kenig, Sjstrand and Uhlmann's result.