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Imaging acoustic sources moving at high-speed DANIEL BODONY[1], University of Illinois at Urbana-Champaign, GEORGE PAPANICOLAOU[2], Stanford University — In the quantification of the noise radiated by a turbulent flow the source motion is important. It is well known that moving acoustic sources radiate sound preferrentially in the direction of motion in a phenomenon termed 'convective amplification.' Modern acoustic theories have utilized this behavior in their predictions. In the inverse problem the imaging of noise sources, by techniques such as beam forming, the source motion is not explicitly taken into account. In this talk we consider the imaging of acoustic sources moving at speeds on the order of the the ambient speed of sound, as typical of high-speed jets, for which the Döppler shift approximation is not appropriate. An analysis will be presented that can be used to estimate the source motion based on the radiated acoustic field.

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