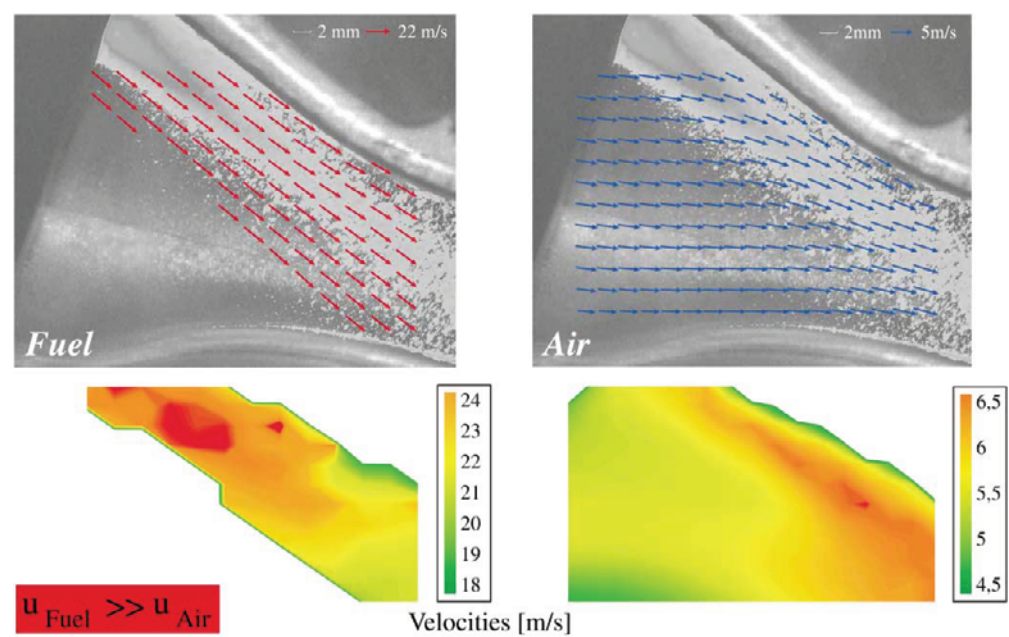


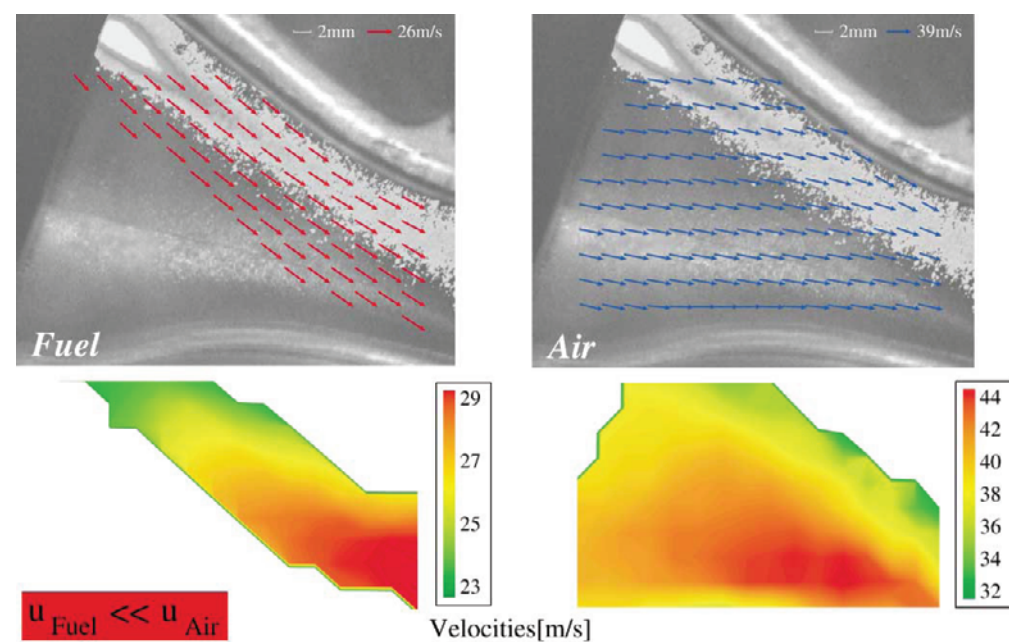
4. Two Phase PIV Measurements inside the Intake Port of an IC-Engine

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(a) Averaged velocity distributions at 6 m/s initial air velocity



(b) Averaged velocity distributions at 40 m/s initial air velocity

The figures show the interaction of the fuel spray with the intake air flow inside the intake manifold of an SI-engine. A new derivative of the PIV technique was investigated to determine simultaneously the velocity fields of a two phase flow, where the difference in the intensity of the scattered light substantially exceeds the dynamic range of the camera. The technique operates with fluorescent seeding particles and an optical filter to adjust the intensity of the Mie scattered light. The two phases recorded by a single CCD-camera are separated by the difference in correlation intensity. The results show impressively the potential of that measurement technique to study the interaction of the fuel spray with the intake air flow.