Post-processing tools from PIV measurements

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In parallel to the development of PIV, a number of tools associated with the analysis of flow velocity measurements have also been proposed during the last years. Correlation tensors were first calculated to isolate the main and regular events of the flow or to follow vortex structures. Beyond this approach, the correlation tensor is also used to calculate Proper Orthogonal Decomposition which gives a simplified representation of the flow optimized for the energy. Other approaches consist in modeling the flow with polynomial orthogonal basis. Finally, with the possibility to obtain time-resolved measurements, computation of the acceleration and pressure fields is now possible, which provides complementary information on the dynamics of the flow. In particular, loads and vorticity conservation can now be predicted and validated.

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