

X-ray Cinema-Tomography

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We report on our progress in laying the groundwork for X-ray Cinema-Tomography, which has the goal of imaging combustion dynamics and reactive flows (flames) with the combination of volumetric real-time probing of density and chemical speciation. This method involves simultaneously probing a flame with multiple x-ray beams from different directions. Our work so far has encompassed computational efforts, including image simulation and development of methods for tomographic reconstruction with extremely few angles; as well as some experiments with hard x-rays, using laue diffraction to generate multiple x-ray beams.