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Ultrafast single-shot imaging of laser-produced plasmas via spatial division and routing[1] SARANG YEOLA, DONGHOON KUK, KI-YONG KIM, Univ of Maryland-College Park — We have developed a single-shot imaging camera, which can capture ultrafast events occurring on femtosecond and picosecond time scales. The working principle of this camera relies on spatial division and routing of femtosecond laser pulses. Here we have employed simple optics such as mirrors to produce multiple, time-delayed laser pulses and to project time-evolving images onto separate standard cameras. This spatial division and routing method has been tested with a femtosecond amplified laser in visualizing the evolution of laser-induced ionization in air and ablation in solids in single-shots. The number of frames is currently limited to 4 but can be increased further to N x N by using 3D printed optics for spatial division and routing.

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