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## **Two-Color FEL by Laser Emittance Spoiler**

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A novel and noninvasive method for two-color x-ray emission is demonstrated at SwissFEL. In the setup, a laser emittance spoiler pulse is overlapped with the primary photocathode laser to locally spoil the beam emittance and the FEL emission. This results, together with a chirped electron pulse, in X-ray emission at two colors. High-energy, high stability, independent control of the duration and of the intensity of the two colors is demonstrated. The laser emittance spoiler enables shot-to-shot selection between one and two-color FEL emission and further, it is compatible with high repetition-rate FELs, as it does not contribute to beam losses.

## I have read and accept the Privacy Policy Statement

Yes

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