35. Title: Towards High-power Single-cycle THz Laser for Initiating High-field-sensitive Phenomena

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Abstract: Powerful THz radiation confined in one field period or less is an adequate tool for triggering nonlinear actions. We show results towards the realization of a tunable high-power THz source based on a laser-driven frequency conversion scheme in plasma and nonlinear crystals. A powerful THz source in combination with the future X-ray Free Electron Laser facility in Switzerland (SwissFEL) holds promise for exciting experiments in a variety of different research areas.