

标题: Off-Axis Phase-Matched Terahertz Emission from Two-Color Laser-Induced Plasma Filaments

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摘要: We observe off-axis phase-matched terahertz generation in long air-plasma filaments produced by femtosecond two-color laser focusing. Here, phase matching naturally occurs due to off-axis constructive interference between locally generated terahertz waves, and this determines the far-field terahertz radiation profiles and yields. For a filament longer than the characteristic two-color dephasing length, it emits conical terahertz radiation in the off-axis direction, peaked at 4-7 degrees depending on the radiation frequencies. The total terahertz yield continuously increases with the filament length, well beyond the dephasing length. The phase-matching condition observed here provides a simple method for scalable terahertz generation in elongated plasmas.

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