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标题: Slowing down terahertz waves with tunable group velocities in a broad frequency range by surface magneto plasmons

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摘要: This paper proposes one broadly tunable terahertz (THz) slow-light system in a semiconductor-insulator-semiconductor structure. Subject to an external magnetic field, the structure supports in total two surface magneto plasmons (SMPs) bands above and below the surface plasma frequency, respectively. Both the SMPs bands can be tuned by the external magnetic field. Numerical studies show that leveraging on the two tunable bands, the frequency and the group velocity of the slowed-down THz wave can be widely tuned from 0.3 THz to 10 THz and from 1 c to 10^{-6} c, respectively, when the external magnetic field increases up to 6 Tesla. The proposed method based on the two SMPs bands can be widely used for many other plasmonic devices. (C) 2012 Optical Society of America

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