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Title:Dispersion control in fiber-coupled THz-TDS
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Abstract:To construct a compact THz-TDS system equipped with movable emitter and receiver heads, a specific fiber-delivery system is developed to deliver ultra-short pulses from Ti: sapphire laser through a single-mode fiber. Hence, how to manage the dispersion in fiber-delivery system efficiently becomes one of the most important issues to be solved. In this paper, the theoretical calculation of dispersion in fiber-delivery system was discussed initially. And also, a pair of gratings, which can generate negative group velocity dispersion (GVD), was introduced to compensate the positive dispersion in fiber. A minimum temporal width of pulse about 60 fs was measured at the end of the fiber-delivery system by optimizing the relative position of gratings. The experimental result agreed well to the theoretical calculation and demonstrated the advantages of the fiber-delivery system. © 2011 Elsevier GmbH.
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