Recent studies involving spintronics have highlighted ultrathin metallic multilayers as a novel and very promising class of broadband terahertz radiation sources that are deemed to be efficient, easy-to-use, and robust [1-3]. Such spintronic multilayers essentially consist of ferromagnetic (FM) and non-magnetic (NM) thin films. When triggered by ultrafast laser pulses, they generate pulsed THz radiation due to the inverse spin-Hall effect [4] – a mechanism that converts optically driven spin currents from the magnetized FM layer into transient transverse charge currents in the NM layer, resulting in THz emission. As THz emitters, FM/NM multilayers had been intensively investigated so far only at 800-nm excitation wavelength using femtosecond Ti:sapphire lasers [1-3]. In this work, we demonstrate that an optimized spintronic bilayer structure of 2-nm Fe and 3-nm Pt grown on 500-μm MgO substrate is just as effective as a THz radiation source when excited either at \( \lambda = 800 \) nm or at \( \lambda = 1550 \) nm by ultrafast laser pulses from a relatively low cost and compact fs fiber laser (pulse width \(~\!100\) fs, repetition rate \(~\!100\) MHz). Fig. 1 shows the waveforms and spectra of the THz radiation when the optimized Fe/Pt bilayer structure was used as emitter in a standard THz time-domain emission spectroscopy setup. Even with low incident power levels, the Fe/Pt spintronic emitter exhibits efficient generation of THz radiation at different excitation wavelengths.

![Fig. 1. Time-domain waveforms and corresponding spectra of THz emission from an optimized Fe/Pt spintronic emitter in a 15-mT magnetic field directed along the plane of the Fe layer.](image-url)