

# Laser-Triggered Terahertz Radiation from Interlayer Exchange-Coupled Spintronic Emitters

Roman Adam,<sup>1, a)</sup> Derang Cao,<sup>1, 2</sup> Daniel E. Bürgler,<sup>1</sup> Sarah Heidtfeld,<sup>1</sup> Fangzhou Wang,<sup>1</sup> Christian Greb,<sup>1</sup> Genyu Chen,<sup>3</sup> Jing Cheng,<sup>3</sup> Debamitra Chakraborty,<sup>3</sup> Markus Büscher,<sup>1, 4</sup> Martin Mikulics,<sup>5</sup> Hilde Hardtdegen,<sup>5</sup> Roman Sobolewski,<sup>3</sup> and Claus M. Schneider<sup>1, 6, 7</sup>

<sup>1</sup>Research Centre Jülich, Peter Grünberg Institute (PGI-6), D-52425 Jülich, Germany

<sup>2</sup>College of Physics, C. for Marine Observation and Communications, Qingdao University, 266071 Qingdao, China

<sup>3</sup>University of Rochester, Rochester, New York, 14627-0231, USA

<sup>4</sup>Institut für Laser- und Plasmaphysik, Heinrich-Heine Universität Düsseldorf, 40225 Düsseldorf, Germany

<sup>5</sup>Research Centre Jülich, Ernst Ruska Centre, 52425 Jülich, Germany

<sup>6</sup>Faculty of Physics, University Duisburg-Essen, 47057 Duisburg, Germany

<sup>7</sup>Department of Physics, University of California Davis, Davis, California 95616-5270, USA

<sup>a)</sup> Corresponding author: r.adam@fz-juelich.de

**Abstract.** Intensity of THz transients triggered by laser excitation in NM/FM/NM/FM/NM multilayers (FM - ferromagnet, NM - normal metal) can be tuned by the interlayer exchange coupling between the two FM layers. We ascribe this tunability to the constructive and destructive interference of the THz transients generated by closely-spaced NM/FM and FM/NM spintronic THz emitters.