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**Optical spin injection into Ge at room temperature** YUHSUKE YASUTAKE, SHUHEI HAYASHI, SUSUMU FUKATSU, Graduate School of Arts and Sciences, The University of Tokyo — A realistic opto-spintronic device draws on the knowledge and control over the optical orientation at room temperature. We investigated circularly polarized photoluminescence of tensilely strained Ge-on-Si in an attempt to inject spins into Ge by optical means at ambient temperature. More than 10-% polarization was observed up to 300 K. The absence of indirect-gap luminescence facilitated spectral analysis. Meanwhile, very fast decay was observed, unlike bulk Ge with little spin polarization. This indicates that intervalley scattering has diminished in Ge-on-Si due presumably to dissipative channels introduced during growth. It is concluded that spin coherence remains in a short time scale. This led us to optical injection of spins, O(1%), in bulk Ge at room temperature, which was observed in the prompt decay.

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