

Abstract Submitted
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A Novel Geometric Effect of the Sunbeam (NGES) and Geometric Spin Hall Effect of Light (GSHEL) due to the Earth Rotation¹

SANGBOO NAM, Retired — Recently there are reports of NGES² based on geometrical optics, and GSHEL³ based on electrodynamics in vacuum. Here, I discuss the nature of NGES, using the Berry notion of the classical parallel transport,⁴ and present GSHEL due to the earth rotation. For both NGES and GSHEL, the observing frame (detecting plane) should be tilted with respect to the light beam propagation direction. Setups to detect simultaneously both GNES and GSHEL are discussed. Descriptions given here are applicable to any beams such as electronic and atomic beams.

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²S. B. Nam, arXiv **0910.5767** (2009).

³A. Aiello, et al., Phys. Rev. Lett. **103**, 100401 (2009).

⁴M. V. Berry, “Geometric Phases in Physics” (Ed. by A. Shapere and F. Wilczek, Singapore, 1989) **pp7-28**.

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