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Spin interference effect in a triangular loop array fabricated in (001)$In_{0.53}Ga_{0.47}As/In_{0.52}Al_{0.48}As$ quantum wells[1] HIROSHI OKUTANI, GSIST, Hokkaido University, TAKAAKI KOGA, GSIST, Hokkaido University & CREST, JST, YOSHIAKI SEKINE, NTT BRL, NTT Corporation — We report, for the first time, the spin interference (SI) effect in a triangular loop array fabricated in (001) $In_{0.53}Ga_{0.47}As/In_{0.52}Al_{0.48}As$ quantum wells (QW). Previously [1], we studied the SI effect in a square loop array, where the sides of the squares are either parallel or perpendicular to the <110> crystallographic axis. For an electron with a wave vector **k** that is parallel or perpendicular to the <110> direction, the magnitude of the effective magnetic field due to the all spin-orbit effects,B_{TOT}, is given either by the sum $(B_R + B_D)$ or by the difference $(B_R - B_D)$ between the Rashba and Dresselhaus fields, which makes the analysis relatively simple. Though the situation is more complicated in a triangular loop array, theory including both the Rashba and Dresselhaus terms predicts clear difference in the SI patterns between the following two situations: the bases of the triangles in the array are placed parallel/perpendicular to the <110> crystallographic axis. This finding is being confirmed experimentally. [1] T. Koga *et al.*, Phys. Rev. B **70**, 161302(R) (2004); *ibid.* **74**, 041302(R) (2006).

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