$$A_N^{\sin(\phi_S-\phi_\gamma)} \equiv \frac{2\int_0^{2\pi} \mathrm{d}\phi_\gamma \left[\mathrm{d}\sigma^\uparrow - \mathrm{d}\sigma^\downarrow\right] \sin(\phi_S - \phi_\gamma)}{\int_0^{2\pi} \mathrm{d}\phi_\gamma \left[\mathrm{d}\sigma^\uparrow + \mathrm{d}\sigma^\downarrow\right]}$$