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Ring perturbation of the Schwarzschild black hole

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Almost four decades ago Will considered a stationary and axially symmetric perturbation of a Schwarzschild black hole due to a light and slowly rotating ring. He solved the perturbation equations by Legendre-type expansions and discussed basic properties of the result up to a second order. Here we revisit the scheme and derive the Green functions for linear perturbations in a closed form (without using infinite sums). We also comment on the procedure leading to higher-order contributions.