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New approach to conserved charges of generic gravity in AdS

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Starting from a divergence-free rank-4 tensor of which the trace is the cosmological Einstein tensor, we give a construction of conserved charges in Einstein's gravity and its higher derivative extensions for asymptotically anti-de Sitter spacetimes. The current yielding the charge is explicitly gauge-invariant, and the charge expression involves the linearized Riemann tensor at the boundary. Hence, to compute the mass and angular momenta in these spacetimes, one just needs to compute the linearized Riemann tensor. We give two examples.

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