

# One-loop divergences in 7D Einstein and 6D conformal gravities

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Within the context of AdS/CFT Correspondence, we first compute one-loop infrared (IR) divergences of 7D Einstein Gravity in a certain Poincaré-Einstein background metric. We compute then the one-loop ultraviolet (UV) divergences of 6D Conformal Gravity on the boundary. We verify the equality of the above results that stems from the IR-UV connection of the duality dictionary. Key ingredients are heat kernel techniques, factorization of the boundary higher-derivative kinetic operator for the Weyl graviton on the 6D boundary Einstein metric and WKB-exactness of the Einstein graviton in the chosen 7D Poincaré-Einstein background. In all, we elucidate the way in which the 6D results containing the type-A and type-B conformal anomalies for the Weyl graviton are encoded in the 7D “hologram” given by the fluctuation determinant for the Einstein graviton. We finally discuss possible extensions to include higher-spin fields.

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