

## NORDAN 2016: Several Complex Variables

### High-power asymptotics of weighted harmonic Bergman kernels

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The asymptotics of the weighted Bergman kernels with respect to the weight  $|r|^\alpha$ , where  $r$  is a defining function for a smoothly bounded strictly pseudoconvex domain and  $\alpha \rightarrow +\infty$ , play prominent role in mathematical physics (Berezin quantization) as well as in complex geometry (Donaldson's balanced metrics); the standard tool for their derivation is the famous description of the boundary singularity of the Bergman kernel due to Fefferman, combined with a construction due to Forelli and Rudin. The talk will describe why it is noteworthy to study the analogous asymptotics also for the Bergman kernels for harmonic functions, and will give a complete answer for the case of radial weights on the ball and horizontal weights on the upper half-space. The proofs actually proceed by relating the problem to the holomorphic case mentioned above, but on a different domain.