

# İSTANBUL ANALYSIS SEMINARS

## BERGMAN KERNEL AND PROJECTIONS ON WORM DOMAINS AND RELATED QUESTIONS

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**Abstract:** We describe the analysis of the Bergman kernel and projections on worm domain, starting from the breakthrough result of Barrett, following Kiselman, some result by the speaker with S. Krantz, up to recent results on the unbounded worm domain  $W$ . In this case, we show that the Bergman space of  $W$  is not trivial. We obtain an asymptotic expansion for  $K$  that allows us to describe its singularities at the boundary and to prove the following:

- (1) For all  $s > 0$ , the Bergman projection  $P$  does not map the Sobolev space  $W^s(W)$  into itself.
- (2) For  $p$  different from 2,  $P$  does not map  $L^p(W)$  into itself.

(This is joint work with S. Krantz and C. Stoppato.)

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**Time:** 17:00

**Place:** Sabancı University, Karaköy Communication Center  
Bankalar Caddesi 2, Karaköy 34420, İstanbul

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