



# GLOBAL ANALYSIS SEMINAR

## Algebraic versus Analytic Index Theorems

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**Abstract:** In my talk I will show that the famous Atiyah-Singer index theorem can be deduced from its algebraic version proposed by B. Fedosov, R. Nest and B. Tsygan. I will start by recalling deformation quantization of symplectic manifolds. Then I will formulate the algebraic index theorem. Next I will show that symbol calculus of pseudo-differential operators on a smooth closed manifold  $X$  gives us a deformation quantization of the cotangent bundle  $T^*X$ . Finally, I will deduce the Atiyah-Singer index theorem for elliptic pseudo-differential operators on  $X$ . In my talk I will mostly follow the article of R. Nest and B. Tsygan “*Formal versus Analytic Index Theorems*”.

Wednesday October 20, 1–2:20pm  
Wachman Hall 617

<http://math.temple.edu/events/seminars/manifolds/>