

Meeting: 1003, Atlanta, Georgia, SS 37A, AMS Special Session on In the Wake of Jacobi and Hamilton 200 Years Later, I

1003-81-1381 **Pavel Winternitz*** (wintern@crm.umontreal.ca), Centre de recherches mathematiques, Universite de Montreal, C.P. 6128 succursale Centre-ville, Montreal, H3C 3J7, Canada. *Umbral Calculus and Continuous Symmetries of Linear Difference equations.*

We show how finite operator calculus makes it possible to preserve such important features of quantum theories as Lorentz, or Galilei invariance, when these theories are considered on discrete space-time lattices. The same calculus makes it possible to extend separation of variables techniques from differential to difference equations. The research presented here was done in collaboration with D.Levi and P.Tempesta. (Received October 05, 2004)