



Library Indian Institute of Science Education and Research Mohali



DSpace@IISERMohali (/jspui/)
/ Publications of IISER Mohali (/jspui/handle/123456789/4)
/ Research Articles (/jspui/handle/123456789/9)

Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/3189>

Title:	Symplectic group methods and the Arthurs Kelly model of measurement in quantum mechanics
Authors:	Arvind (/jspui/browse?type=author&value=Arvind)
Keywords:	Arthurs-Kelly model Symplectic groups Uncertainty relations
Issue Date:	2020
Publisher:	Elsevier B.V.
Citation:	Physics Letters, Section A: General, Atomic and Solid State Physics, 384(23)
Abstract:	We study the use of methods based on the real symplectic groups $Sp(2n, \mathbb{R})$ in the analysis of the Arthurs-Kelly model of proposed simultaneous measurements of position and momentum in quantum mechanics. Consistent with the fact that such measurements are in fact not possible, with arbitrary precision, we show that the observable consequences of the Arthurs-Kelly interaction term are contained in the symplectic transformation law connecting the system plus apparatus variance matrices at an initial and a final time. The individual variance matrices are made up of averages and spreads or uncertainties for single hermitian observables one at a time, which are quantum mechanically well defined. The consequences of the multimode symplectic covariant Uncertainty Principle in the Arthurs-Kelly context are examined.
Description:	Only IISERM authors are available in the record.
URI:	https://www.sciencedirect.com/science/article/pii/S0375960120304102?via%3Dihub (https://www.sciencedirect.com/science/article/pii/S0375960120304102?via%3Dihub) http://hdl.handle.net/123456789/3189 (http://hdl.handle.net/123456789/3189)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format
Need to add pdf.odt (/jspui/bitstream/123456789/3189/1/Need%20to%20add%20pdf.odt)		8.63 kB	OpenDocument Text

[View/Open \(/jspui/bitstream/123456789/3189/1/Need%20to%20add%20pdf.odt\)](/jspui/bitstream/123456789/3189/1/Need%20to%20add%20pdf.odt)

[Show full item record \(/jspui/handle/123456789/3189?mode=full\)](/jspui/handle/123456789/3189?mode=full)

[Statistics \(/jspui/handle/123456789/3189/statistics\)](/jspui/handle/123456789/3189/statistics)

Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.

