

Accepted Manuscript

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PII: S0022-1236(17)30360-9
DOI: <https://doi.org/10.1016/j.jfa.2017.09.012>
Reference: YJFAN 7883

To appear in: *Journal of Functional Analysis*

Received date: 22 April 2017
Accepted date: 19 September 2017

Please cite this article in press as: M. Schötz, S. Waldmann, Convergent star products for projective limits of Hilbert spaces, *J. Funct. Anal.* (2017), <https://doi.org/10.1016/j.jfa.2017.09.012>

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Convergent Star Products for Projective Limits of Hilbert Spaces

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April 2017

Abstract

Given a locally convex vector space with a topology induced by Hilbert seminorms and a continuous bilinear form on it we construct a topology on its symmetric algebra such that the usual star product of exponential type becomes continuous. Many properties of the resulting locally convex algebra are explained. We compare this approach to various other discussions of convergent star products in finite and infinite dimensions. We pay special attention to the case of a Hilbert space and to nuclear spaces.

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