A Foreword to “Formal Series and Distributions” by C. Ribeiro Braga and M. Schönberg

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The following paper [1], by Carmen Lys Ribeiro Braga and Mario Schönberg, appeared in the September 1959 issue of the *Anais da Academia Brasileira de Ciências*, the official scientific journal of the Brazilian Academy of Sciences. The paper is remarkable for several reasons. It presents a deep, physically grounded, analysis involving some mathematical ideas that were quite novel for the time. The groundbreaking book by Laurent Schwartz introducing the topic he dubbed as “theory of distributions” had appeared at the beginning of the fifties, and it was not well known by the physicist community by then. Motivated by some quantum mechanical arguments, the authors show that the formal series of orthogonal functions, which they will eventually relate to distributions, are naturally defined on a Wiener linear space, allowing the introduction of rigorous and meaningful

manipulations of the series as required in some physical problems. Despite its pioneering character, the paper is still inspiring and valuable today as one can see, for instance, in its very recent application in [2].

References

1. C.L.R. Braga, M. Schönberg, Formal Series and Distributions. *Braz. J. Phys.* (2021). <https://doi.org/10.1007/s13538-021-00945-0>
2. M. Amaku, F.A.B. Coutinho, O.J.P. Éboli, et al., Some Problems with the Dirac Delta Function: Divergent Series in Physics. *Braz. J. Phys.* (2021). <https://doi.org/10.1007/s13538-021-00916-5>

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