



Ann. Funct. Anal. 1 (2010), no. 1, 80–104

ANNALS OF FUNCTIONAL ANALYSIS

ISSN: 2008-8752 (electronic)

URL: [www.emis.de/journals/AFA/](http://www.emis.de/journals/AFA/)

## ON THE TWO-DIMENSIONAL MOMENT PROBLEM

SERGEY ZAGORODNYUK<sup>1</sup>

Communicated by C. P. Niculescu

ABSTRACT. In this paper we obtain an algorithm towards solving the two-dimensional moment problem. This algorithm gives the necessary and sufficient conditions for the solvability of the moment problem. It is shown that all solutions of the moment problem can be constructed using this algorithm. In a consequence, analogous results are obtained for the complex moment problem.

<sup>1</sup> SCHOOL OF MATHEMATICS AND MECHANICS, KARAZIN KHARKIV NATIONAL UNIVERSITY, KHARKIV 61077, UKRAINE.

*E-mail address:* [Sergey.M.Zagorodnyuk@univer.kharkov.ua](mailto:Sergey.M.Zagorodnyuk@univer.kharkov.ua)

---

*Date:* Received: 20 July 2010; Accepted: 19 October 2010.

*2010 Mathematics Subject Classification.* Primary 44A60; Secondary 30E05.

*Key words and phrases.* Moment problem, Hilbert space, linear equation.