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**PREPRINT SERIES OF THE
"OCTAV MAYER" INSTITUTE OF MATHEMATICS**

Title:

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Nr. 02-2009

ISSN 1841 – 914X

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Bd. Carol I nr. 10, 700506 IAȘI, ROMANIA**

http://acad-is.tuiasi.ro/Institute/preprint.php?cod_ic=13

Existence and uniqueness of solutions to the stochastic porous media equations of saturated flows

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May 14, 2009

Abstract

This paper proves the existence and uniqueness of nonnegative solutions for the stochastic porous media equations with multiplicative noise, infinite jump and discontinuous diffusivity function relevant in description of saturation processes in underground water infiltration in a bounded domain of \mathbb{R}^3 .

2000 Mathematics Subject Classification: 60H15, 76S05.

Key words and phrases: stochastic porous media equations, saturation processes in underground water infiltration, Yosida approximation, Wiener process.

To appear in:

Applied Mathematics and Optimization.

The paper will be available after 12 months of official publication, because of a copyright transfer to "Springer Science+Business Media, LLC".