

# On classical solutions for the fifth order short pulse equation

Giuseppe Coclite<sup>1</sup> and Lorenzo di Ruvo<sup>2</sup>

<sup>1</sup>Politecnico di Bari

<sup>2</sup>Universita degli Studi di Bari Aldo Moro

May 5, 2020

## Abstract

The fifth order short pulse equation models the nonlinear propagation of optical pulses of a few oscillations duration in dielectric media. In particular, it models the propagation of circularly and elliptically polarized few-cycle solitons in a Kerr medium. In this paper, we prove the well-posedness of the classical solutions for the Cauchy problem associated with this equation.

## Hosted file

Cauchy-problem-Short-pulse-quinto-ordine.pdf available at <https://authorea.com/users/305135/articles/435762-on-classical-solutions-for-the-fifth-order-short-pulse-equation>