



# A Common Fixed Point Theorem for a Sequence of Self Maps in Cone Metric Spaces

Jianghua Liu<sup>1</sup> and Xi Wen<sup>2\*</sup>

<sup>1</sup> Jiangxi Province Education Examination Authority,  
Nanchang, 330006, Jiangxi, P. R. China

<sup>2</sup> Department of Computer, Nanchang University,  
Nanchang, 330031, Jiangxi, P. R. China

Received: October 22, 2010; Revised: July 27, 2011

**Abstract:** In this paper, we obtain a new common fixed point theorem by using a new contractive condition in cone metric spaces. Our result generalizes and extends well known result in complete metric spaces.

**Keywords:** cone metric spaces; common fixed point; sequence; normal.

**Mathematics Subject Classification (2000):** 47H10; 54E35; 54H25.

## 1 Introduction

The study of fixed points of functions satisfying certain contractive conditions has been at the center of vigorous research activity, for example see [1]–[5] and it has a wide range of applications in different areas such as nonlinear and adaptive control systems, parameterize estimation problems, fractal image decoding, computing magnetostatic fields in a nonlinear medium, and convergence of recurrent networks, see [6]–[10]. Recently, Huang and Zhang [11] have replaced the real numbers by ordering Banach space and define cone metric space. They have proved some fixed point theorems of contractive mappings on cone metric spaces. The study of fixed point theorems in such spaces is followed by some other mathematicians, see [12]–[16]. Choudhury [17] introduced mutually contractive sequence of self maps and proved a fixed point theorem. The purpose of this paper is to obtain a new common fixed point theorem by using a new contractive condition in cone metric spaces. Our result generalizes and extends many known results in metric spaces.

---

\* Corresponding author: <mailto:ncuwen@163.com>