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Paul Fromme
Zhongqing Su
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Introduction

Since 2001, the SPIE conference on Health Monitoring of Structural and Biological Systems has brought together engineers, materials scientists, medical doctors, and biologists to exchange their ideas on this important topic and to update their research findings. The emphasis of this conference is to recognize that non-destructive sensing, sensor array design, signal acquisition and transmission, signal processing, energy harvesting, etc., are integral parts of health monitoring for both structural and biological systems.

Both the biological and physical science communities are learning from one another by coming to this conference and exchanging ideas. Some of the recent advances in the science and technology of health monitoring techniques that go beyond the traditional non-destructive testing for internal flaw detection are presented in these proceedings. New diagnosis, prognosis, and rehabilitation techniques applied to engineering structures made of metal, concrete, and composites, as well as biological systems are included. The papers published here cover a wide range of technologies. It is hoped that this conference will stimulate further interactions between physical and life science communities resulting in newer development of more innovative techniques for health monitoring applications.

The conference was initiated in 2001 by Prof. Tribikram Kundu, and it has grown under his chairmanship with successful annual conferences organized on this topic, with the next one planned for the year 2020.

Proceedings volume 10972 contains papers presented at the 2019 conference. Papers presented in the earlier conferences can be found in Proceedings volumes: 4335 (2001), 4702 (2002), 5047 (2003), 5394 (2004), 5768 (2005), 6177 (2006), 6532 (2007), 6935 (2008), 7295 (2009), 7650 (2010), 7984 (2011), 8348 (2012), 8695 (2013), 9064 (2014), 9438 (2015), 9805 (2016), 10170 (2017), and 10600 (2018).

I am thankful to the Program Committee members, authors, Session Chairs, and the SPIE staff for putting together this excellent conference, with special thanks to Prof. Tribikram Kundu for his long-standing and tireless efforts for the success of this conference.

Paul Fromme