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**George Z. Angeli
Philippe Dierickx**
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Introduction

This conference marked the 10th anniversary of launching a gathering dedicated to Systems Modeling and Systems Engineering as they are applied on telescope and instrument developments in astronomy.

Until the end of the 20th century, telescopes and instruments were difficult to make, but conceptually simple systems. New technologies, new processes, new materials were needed to make them possible, and some of these undertakings would still be considered as mighty challenges today. However, these telescopes and instruments belonged to the *machine world*. In this world, it is the parts that matter most; understanding them is broadly sufficient to understand the system, and make it work. This seems no longer true. Instruments, and after them, the notionally simpler telescopes, became functionally more complex. They have been transiting into the *systems world*, whereby overall system properties can no longer be approximated by the sum of individual ones. In this world, engineers must cope with difficulty *and* complexity. The former is usually the domain of the specialist; the latter, of the systems engineer.

The evolution of this conference over the last decade reflects this transition. In Glasgow, the conference was dominated by modeling, indicating the prevalence of technical challenges on the minds of our colleagues. In the relatively short timeframe of 10 years, the tide has changed; not just the large number of systems engineering papers are demonstrating it, but also their high quality.

In 2004, the goal was set for the community, as well as for the conference: "Systems engineering has existed in space astronomy projects since the very first mission. With the ever increasing complexity and cost of ground-based facilities, it should also be at the core of all astronomy technology projects." If this year's conference is any indication, we are getting there ...

Projects have started picking from a vast body of knowledge, adopting and adapting principles and methods to their particular needs, objectives, or culture. Through these proceedings, we hope the reader may find ideas about and solutions to problems he or she has to cope with, and, perhaps, eventually decide to share with the community his or her experience at the next occurrence of this conference. Keep the body of knowledge breathing!

George Z. Angeli
Philippe Dierickx

