David Tall

**Making Sense of Mathematical Reasoning and Proof**

This presentation considers how individuals make sense of mathematical reasoning and proof as they mature over a lifetime, taking account of personal conceptions and emotional reactions that can support or impede understanding at successive stages. It includes a reflection on the nature of mathematics with its coherent related structures and considers not only the growth of mathematical thinking in students and the sophisticated conceptions of experts, it also invites us all to reflect deeply on our own understandings, to seek to grasp how we are all products of our evolutionary, cultural and personal history. This reflection should be relevant not only to expert mathematicians, mathematics educators and those in related disciplines in various communities of practice, but also to teachers and children whom we seek to support, taking into account a full spectrum of possibilities. It is intended to consider both theoretical and practical issues to seek a simpler, more profound basis for understanding of the relationship between human evolution of thought and our appreciation of the development of mathematical reasoning and proof within the broader growth of mathematical thinking in general.