Duality, symmetry and symmetry lost in solid mechanics. Selected works of H.D. Bui

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Abstract: This book collects many of H.D. Bui's works mostly in French, and mostly unknown to the English scientific community, in the fields of Duality, Symmetry in Conservation Laws, Complementarity and Symmetry Lost. The concepts are seldom fully recognized in the literature and, in this sense, this book is unique. To quote Bui: “Duality is synonym of parallelism, or complementary things, sometimes opposite things, tied together in an integral whole”. The concept of Duality is closely linked to the concept of “virtual power” in the Mechanics of continuous media; it originates from the concept of spaces and dual spaces of functions in mathematics culminating in the Theory of Distributions by Laurent Schwartz. H.D. Bui exploited the richness of duality to solve elegantly some important and deep inverse engineering problems presented in this book. It contains a total of 31 papers, including one on the application of complementarity to explain the construction of Kheops's pyramid. For his fundamental contributions to Mechanics H.D. Bui was elected to the French Academy of Sciences in 1995 and the European Academy of Sciences in 2001. The presentation of the printed edition of this book coincides with an International Colloquium in his honor in Paris on July 4-5, 2011, with the participation of a large number of distinguished scientists representing the US Academy of Sciences, the US Academy of Engineering, the Royal Society of London, as well as the Russian Academy of Sciences and the French Academy of Sciences.

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The concept of Duality is closely linked to the concept of “virtual power” in the Mechanics of continuous media; it originates from the concept of spaces and dual spaces of functions in mathematics culminating in the Theory of Distributions by Laurent Schwarz. H.D. Bui exploited the richness of duality to solve elegantly some important and deep inverse engineering problems presented in this book. It contains a total of 31 papers, including one on the application of complementarity to explain the construction of Kheops's pyramid. Mechanics of Solids publishes articles in the general areas of dynamics of particles and rigid bodies and the mechanics of deformable solids. The journal has a goal of being a comprehensive record of up-to-the-minute research results. The journal coverage is vibration of discrete and continuous systems; stability and optimization of mechanical systems; automatic control theory; dynamics of multiple body systems; elasticity, viscoelasticity and plasticity; mechanics of composite materials; theory of structures and structural stability; wave propagation and impact of solids; fracture mechanics; Duality, symmetry and symmetry lost in solid mechanics - Selected works of H.D. Bui - (Ed. Xanthippi Markenscoff et Alain Ehrlacher) À l'occasion d'un colloque les 4-5 juillet 2011 À Paris (À Lucile des Mines ParisTech) - Presse des Ponts. We will certainly miss his style, his constant smile, his delicate touch and voice. Â Mike Ciavarella's blog. Log in or register to post comments.