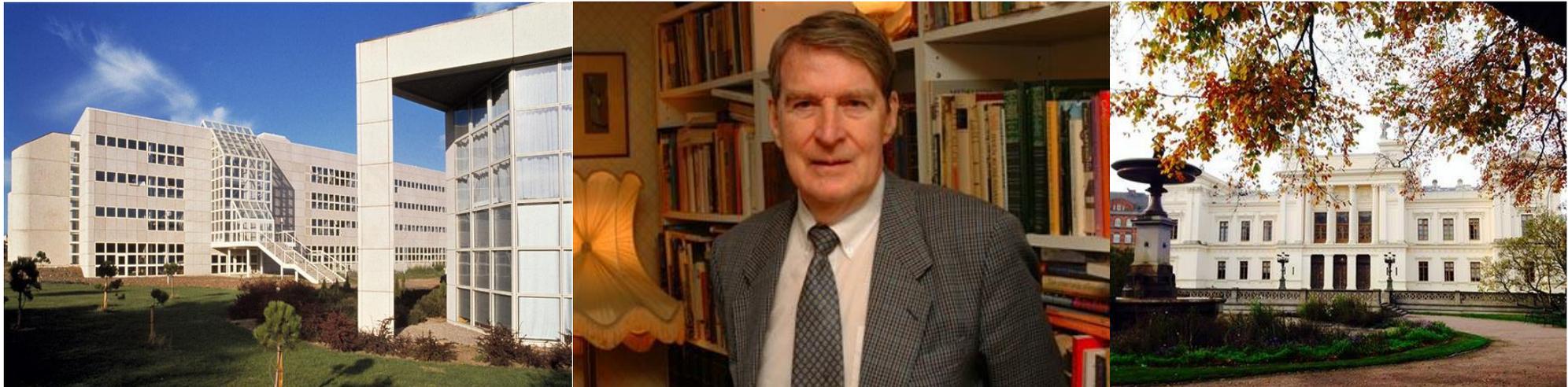




LUND INSTITUTE OF TECHNOLOGY
Lund University



The Bertram Broberg Memorial Fund

Annual Newsletter- August 2015

Prepared for circulation at the

5th Bertram Broberg Symposium on Mechanics of Materials

in

Karlskrona, Sweden from 24-25 August 2015

Dear Friends and Colleagues,

*I am delighted to join you at the fifth **Bertram Broberg Symposium on Mechanics of Materials** in Blekinge Institute of Technology this summer - as you know this symposium holds a special place in my heart as we honor Bertram's legacy.*

I am pleased to enclose a report from Professor Michael Gilchrist, who is a member of the Bertram Broberg Memorial Fund International Advisory Board, on the Irish Mechanics Joint Symposium which was held in Galway in 2014.

Michael and his colleagues will be announcing the details of the 2015 Bertram Broberg Symposium in Dublin in December in the coming few weeks. We hope you will be able to join us on this special 10th anniversary celebration.

*In addition to the annual Bertram Broberg Symposium, we also established the **Bertram Broberg Memorial Medal** in 2010 which is awarded for the best PhD thesis in the College of Engineering, Mathematical and Physical Sciences (EMPS) at UCD. To date we have awarded four medals and I look forward to announcing the recipient of the fifth medal at the 2015 Bertram Broberg Symposium in Dublin.*

Meanwhile, comments or suggestions regarding this symposium would be welcome.

With all best wishes, sincerely,

Anne Buttimer-Broberg



The UCD Bertram Broberg Memorial Fund

The UCD Bertram Broberg Memorial Fund was established in 2009 in memory of Professor Bertram Broberg at the request of his widow, Professor Anne Buttimer-Broberg to celebrate and honour the life and work of a much-respected academic.

The purpose of the UCD Bertram Broberg Memorial Fund is to:

- honour Professor Bertram Broberg's memory
- promote continuing work on the many ideas that he shared so generously with students and colleagues throughout his lifetime and through this to advance internationally collaborative research among scientists and engineers.



Knut Bertram Broberg (1925-2005) was internationally acclaimed for his pioneering research in fracture dynamics, bio-mechanics and mathematics. His fracture contributions impacted engineering and geophysics, starting with experimental studies of shock waves in solids, continuing with his mathematical derivation of the first rigorous solution ever presented for dynamic crack enlargement in an elastic solid, and growing into a series of seminal contributions to understanding rupture dynamics along earthquake faults, as well as innovative ways of addressing fracture processes in ductile metals of engineering structures by mathematical and computational modelling and by experiment, at scales from microscopic to macroscopic.

A champion sportsman, he maintained a lifelong interest in nature, travel and a deep concern about technology and environment. First Rector and Professor of Solid Mechanics at the Lund Institute of Technology in the 1960s, Bertram was Member of the Swedish Academy of Science, the Swedish Academy of Engineering Sciences and a wide range of other professional organizations in Sweden and other countries. He also accepted invitations for lectures and research sojourns abroad and during his career influenced students and colleagues in many lands, especially in Japan, Russia, China, Poland, the United States of America and Canada before "retiring" to Ireland in 1991. In Ireland, University College Dublin was delighted to welcome him as Senior Academic Fellow at the Department of Mathematical Physics and he also enjoyed close links with the Departments of Mechanical Engineering and Geology.

ISSEC – Irish Mechanics Joint Symposium, 2014

The 2014 joint *Irish Mechanics Society (IMS) / Irish Society for Scientific Engineering & Computation (ISSEC)* symposium took place at the Engineering Building in the National University of Ireland Galway on Monday, December 8th and Tuesday, December 9th, 2014.

Conference chairs: Prof Michel Destrade and Dr Patrick McGarry.

Local organising committee: David Nolan, Artur Gower, Eoin McEvoy, Catherine O'Connor, Brian O'Reilly, Lianne Gallagher, Giuseppe Zurlo, Rory Monaghan, Nathan Quinlan.

The 2014 Irish Mechanics Joint symposium was a great success, with a strong focus on solid mechanics, fluid mechanics, and numerical methods. The programme included four plenary talks by internationally leading researchers: Professors Jean-Christophe Desplat (ICHEC), Frédéric Dias (UCD), Noel O'Dowd (UL), and Ray W. Ogden FRS (University of Glasgow). The programme also consisted of 40 podium presentations (15 minutes) arranged in focused sessions in the key areas of Biomechanics (two sessions), Solid Mechanics (two sessions), Computational Fluid Dynamics (four sessions), and Composite Structures (one session).

Overall, 53 delegates registered for the conference, details as follows:

- Invited Keynote Speakers: 4
- Full delegates: 25 (21 podium presentations, 4 non-presenting delegates)
- Student delegates: 24 (19 podium presentations, 5 poster presentations).

The contribution of the session chairs is gratefully acknowledged: Prof Michael Gilchrist, Prof Peter McHugh, Prof Sean Leen, Dr Nathan Quinlan, Dr Ricardo Barros, Dr Sarah Mitchell, Dr Ted Vaughan, Dr Brian Ward, and Dr Jerry Murphy.

An informal dinner and social night took place on the Monday evening at The Gaslight Brasserie, Meyrick Hotel, Eyre Square. This event was attended by over 30 delegates and provided an excellent opportunity for networking in the festive Christmas atmosphere in the heart of Galway city.

Prof Michael Gilchrist
Head of UCD School of Mechanical &
Materials Engineering



Irish Mechanics Joint Symposium, 2014 - a brief summary

The Symposium took place in the
Engineering Building, NUI Galway
8th and 9th December 2014

Welcome address & Opening remarks were made by Michel Destrade and Patrick McGarry

Keynote Speakers included:

- Professor JC Desplat (ICHEC)** *Outlook on technical computing*
- Professor Frédéric Dias (UCD)** *Local analysis of wave fields from hindcasted sea states for rogue wave risk evaluations.*
- Professor Noel O'Dowd (UL)** *Formation of metallic materials: modelling and validation.*
- Professor Ray W Ogden (Glasgow)** *The influence of residual stresses in soft materials under large deformations.*



Engineering Building, National University of Ireland Galway



Galway Christmas Market, Eyre Square, adjacent to the conference dinner venue (Meyrick Hotel)

Bertram Broberg Medal 2014

In 2013, while there were many excellent PhDs conferred on UCD students graduating from Engineering, Mathematics and Science, none of these were in areas sufficiently close to the range of interests of Bertram. Rather than award a candidate whose work was unrelated to Bertram's research interests, it was decided to not award a medal in 2014. However, it is expected that there will be strong competition from candidates in mechanical engineering, geological science and mathematical science for the 2014 medal, which will be presented at the 2015 symposium (Dublin, December).

Previous Medal Winners



2010

Dr Manuel Forero Rueda

Thesis title:

Equestrian helmet design: A computational and head impact biomechanics simulation approach

Current Location:

US (industry)



2011

Dr Stephen Kiernan

Thesis title:

Constitutive modelling of a density gradient cellular solid

Current location:

Ireland (industry)



2012

Dr Declan Carolan

Thesis title:

Mechanical and fracture properties of PCBN as a function of rate and temperature

Current location:

UK (higher education)



2014

Dr Aisling Ni Annaidh

Thesis title:

Mechanics of stabbing

Current location:

Ireland (higher education)

A wide-angle photograph of the University College Dublin campus. The foreground shows a large, circular green lawn with a paved walkway and a large, dark, spherical sculpture. In the background, there are several modern university buildings, a lake, and a blue sky with white clouds.

*2015 Bertram Broberg Symposium
in
University College Dublin*

Date for Diary – Monday 7 & Tuesday 8 December

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