



**Professor Jurgen Becque**

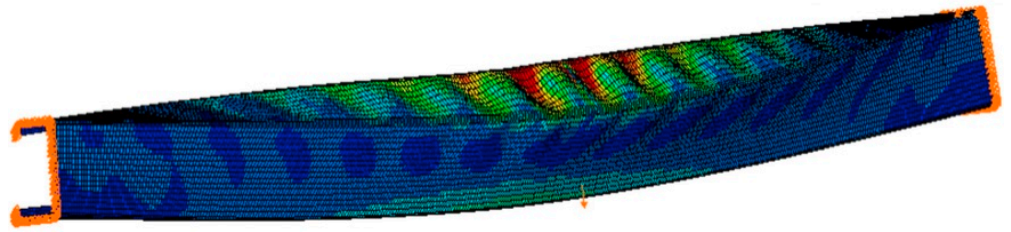


Fig. 17. Typical failure mode of laterally unbraced beams (specimen 10L17e0 at ultimate load).

From: Jun Ye, Iman Hajirasouliha, Jurgen Becque and Abolfazl Eslami, "Optimum design of cold-formed steel beams using Particle Swarm Optimisation method", *Journal of Constructional Steel Research*, Vol. 122, pp 80-93, July 2016

See:

<https://www.sheffield.ac.uk/civil/staff/academic/jb>

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<https://steel.shef.ac.uk/people/dr-jurgen-becque>

<https://www.journals.elsevier.com/thin-walled-structures/editorial-board/j-becque>

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### **Profile:**

Jurgen practiced as a design engineer for AECOM, specializing in the design of low-rise steel frame buildings, steel plate girder bridges, concrete tanks, and water treatment facilities. He completed his PhD in 2008 at the University of Sydney and then lectured there for three years. He joined our Department in 2011. His key research interests include the stability of cold-formed steel and stainless steel structural elements, tri-axial concrete behavior, connections in structural hollow sections and the application of FRP to strengthen concrete structures. He uses analytical methods and software to improve the understanding of how much load structural elements can withstand before they fail and cause structural instability. By concentrating on cold-formed steel, a material with a higher strength-to-weight ratio, that can be formed into more versatile geometry, and that is easier to transport and faster to construct with, Jurgen's work contributes to optimization and sustainability in construction practices. His work also extends into fire engineering and how cold-formed steel behaves in very high temperatures, so structures can be made safer in the event of fire.

### **Education:**

MEng Ghent University; MSc The University of Manitoba; PhD The University of Sydney

### **Selected Publications:**

Becque, J. 2008. The interaction of local and overall buckling of cold-formed stainless steel columns. Ph.D. thesis, School of Civil Engineering, University of Sydney, Sydney, Australia

J. Becque, M. Lecce, K.J.R. Rasmussen, "The direct strength method for stainless steel compression members", *J. Constr. Steel Res.*, 64 (11) (2008), pp. 1231-1238

Becque J, Rasmussen KJR (2009) Experimental investigation of the interaction of local and overall buckling of stainless steel I-columns. *J Struct Eng* 135(11):1340–1348

Becque J, Rasmussen KJR (2009) Numerical investigation of the interaction of local and overall buckling of stainless steel I-columns. *J Struct Eng* 135(11):1349–1356

Becque J, Rasmussen KJR (2009) A numerical investigation of local-overall interaction buckling of stainless steel lipped channel columns. *J Constr Steel Res* 65(8–9):1685–1693

Becque J, Rasmussen KJR (2009) Experimental investigation of local-overall interaction buckling of stainless steel lipped channel columns. *J Constr Steel Res* 65(8–9):1677–1684

Becque J. (2010): Inelastic plate buckling. – *ASCE J. Eng. Mech.*, vol.136, No.9, pp.1123-1130.

[Jurgen Becque](#), “An inelastic finite strip method for thin-walled compression members”, *Thin-Walled Structures*, Vol. 50, pp 87-94, January 2012

Jurgen Becque and Kim L.R. Rasmussen, “Stability of Z-section purlins used as temporary struts during construction”, *ASCE Journal of Structural Engineering*, Vol. 139, No. 12, December 2013

Becque J and Li X (2014) The polarisation method for modal decomposition of buckled shapes. In: 7th international conference on thin-walled structures, Busan, Korea, 28 September–2 October (ICTWS2014-S0701).

Karakonstantis V and Becque J (2014) Modal classification and decomposition of instabilities in thin-walled structural members. In: 7th international conference on thin-walled structures, Busan, Korea, 28 September–2 October (ICTWS2014-0705).

[Jurgen Becque](#), “Local-overall interaction buckling of inelastic columns: A numerical study of the inelastic Van de Neut column”, *Thin-Walled Structures*, Vol. 81, pp 101-107, August 2014

W. Ma, J. Becque, I. Hajirasouliha, J. Ye Cross-sectional optimization of cold-formed steel channels to Eurocode 3 *Eng. Struct.*, 101 (2015), pp. 641–651

Meza, F., Becque, J., and Hajirasouliha, I. (2015). “Experimental investigation of cold-formed steel built-up stub columns.” *Advances in steel structures* Lisbon, Portugal, 10

Jurgen Becque, “A new approach to modal decomposition of buckled shapes”, *Structures*, Vol. 4, pp 2-12, November 2015

Jun Ye, Iman Hajirasouliha, Jurgen Becque and Kypros Pilakoultas, “Development of more efficient cold-formed steel channel sections in bending”, *Thin-Walled Structures*, Vol. 101, pp 1-13, April 2016

Jurgen Becque, “The application of plastic flow theory to inelastic column buckling”, *International Journal of Mechanical Sciences*, Vol. 111-112, pp 116-124, June 2016

Jun Ye, Iman Hajirasouliha, Jurgen Becque and Abolfazl Eslami, “Optimum design of cold-formed steel beams using Particle Swarm Optimisation method”, *Journal of Constructional Steel Research*, Vol. 122, pp 80-93, July 2016

Jurgen Becque and Shanshan Cheng, “Sidewall buckling of equal-width RHS truss X-joints”, *ASCE Journal of Structural Engineering*, Vol. 143, No. 2, February 2017

Jurgen Becque and Tim Wilkinson, “The capacity of grade C450 cold-formed rectangular hollow section T and X connections: An experimental investigation”, *Journal of Constructional Steel Research*, Vol. 133, pp 345-359, June 2017

Jun Ye, Jurgen Becque, Iman Hajirasouliha, Seyed Mohammad Mojtabaei and James B.P. Lim, “Development of optimum cold-formed steel sections for maximum energy dissipation in uniaxial bending”, *Engineering Structures*, Vol. 161, pp 55-67, April 2018

Jun Ye, Iman Hajirasouliha and Jurgen Becque, “Experimental investigation of local-flexural interactive buckling of cold-formed steel channel columns”, *Thin-Walled Structures*, Vol. 125, pp 245-258, April 2018