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Address: P.O. Box 4760 Sluppen, NO-7465 Trondheim, Norway
Present position: Senior scientist (SINTEF) / Adjunct professor (NTNU)
Degrees: MSc (Siv.ing. 1981) and PhD (Dr.ing. 1988)

Project leader experience

At present, adj. prof. Akselsen is project leader of the KPN SMACC (2013-20187) project, and has recently finished the KMB Deep water repair welding and hot tapping (2009-2013), both with substantial funding from the Research Council of Norway. He is responsible for PhDs in the ROP project (2014-2018). Akselsen was also project leader of the KMB project "Arctic Materials" (2008-2012), sponsored by the Research Council and numerous industry partners.

He has also been project leader of many industry projects, both nationally and internationally.

Work experience

2008- : Adj. professor, NTNU (IPM)
 2018-.....: Senior scientist, SINTEF Industry
 2004-2017: Senior scientist, SINTEF Materials and Chemistry
 1999-2004: Research Director, Dept. of Corrosion and Surface Technology, SINTEF Materials Technology
 1991-1993: Head, Section of Physical Metallurgy/Joining Technology, Division of Metallurgy
 1985-1991: Head, Welding Metallurgy Group, Div. of Metallurgy
 1982-1985: Research Scientist, SINTEF, Div. of Metallurgy

Present research activities and fields of interest

Today, his main research activities comprise joining technology applied to a wide variability of materials, with emphasis on welding and weldability of structural and stainless steels for the oil and gas industry. In addition, the relationship between phase transformation behaviour and low temperature brittle fracture is a key issue.

Membership in academic and professional committees

Norwegian national welding association (NSF), Norwegian Metallurgical Society (NMS), American society for Metals (ASM), International Society of Offshore and Polar Engineers (ISOPE), member of the Technical Programme Committee of ISOPE (annual ISOPE conference), co-editor of the IJOPE journal, member of professor appointment committee (NTNU, 2009 & 2010).

Awards

Recipient of the ISOPE best session organizer award for 2011-2013 annual conferences, the Wm H. Hobart Award presented by The American Welding Society in April 2005 and the Arsham Amirikian Memorial Maritime Welding Award presented by The American Welding Society in April 1993.

Present and past doctoral students supervised

1. Amin Azar: Hyperbaric GMA welding (2010-2012)
2. Antonio Alvaro: Modelling of cold cracking in hyperbaric welding (2010-2013)
3. Lise Jemblie: Modelling and simulation of the structural integrity in hyperbaric welding of clad and lined pipe in the presence of hydrogen (2014, ongoing)
4. Ivan Bunaziv: Laser hybrid welding of structural steels for Arctic applications (2015, ongoing)
5. Gunnar Sande: Hyperbaric welding of subsea pipelines (2016, ongoing)
6. Geir Langelandsvik: Arc + wire additive manufacture of aluminium alloys (2017, ongoing)

Referee work

- Material Science & Engineering
- Acta Metallurgica & Materialia
- Scripta Metallurgica & Materialia
- Journal of Material Science
- Science and Technology in Welding and Joining
- Journal of Materials Processing Technology
- International Journal of Materials Research (formerly Zeitschrift für Metallkunde)
- Material Science and Technology
- Surface and Coating Technology
- Materials Chemistry and Physics
- International Journal of Offshore and Polar Engineering (IJOPE)

- Marine Structures
- Journal of Alloys and Compounds
- International Journal of Advanced Manufacturing Technology
- Journal of Optics and Laser Technology
- International Journal of Hydrogen Energy
- Materials & Design

Publications Total number of publications (375, including articles published in international refereed journals (67), theses (2), international conference papers published in conference proceedings (102), book chapter (1), technical reports (138), posters and presentations (41), and national journals (29).

Selected peer review journals (2014-2018)

1. I. Bunaziv, O.M. Akselsen, J. Frostevang, A.F.H. Kaplan: "Laser-arc hybrid welding of thick HSLA steel", submitted to J. Mater. Proc. Technol.. (Febr. 2018).
2. I. Bunaziv, O.M. Akselsen, J. Frostevang, A.F.H. Kaplan: "Deep penetration fiber laser-arc hybrid welding of thick HSLA steel", J. Mater. Proc. Technol.. available online (Febr. 2018).
3. A. Horgar, H. Fostervoll, B. Nyhus, X. Ren, M. Eriksson, O.M. Akselsen: "Wire and arc additive manufacturing using AA5183 wire", submitted to J. Mater. Proc. Technol. (November 2017).
4. I. Bunaziv, J. Frostevang, O.M. Akselsen, A.F. Kaplan: "The process efficiency of thick plate laser-arc hybrid welding", submitted for publication in Int. J. Adv. Mater. Proc. (Jan. 2018).
5. I. Bunaziv, J., Frostevang, O.M. Akselsen, A.F.H. Kaplan: "Process stability during fiber laser-arc hybrid welding of thick steel plates", Optics and Lasers in Engineering 102, 2018, 34-44.
6. B. Dahl, X. Ren, O.M. Akselsen, B. Nyhus, Z. Zhang: "Effect of low temperature tensile properties on crack driving force for Arctic applications", Theoretical and Applied Fracture Mechanics 93, 2018, 88-96.
7. I. Bunaziv, J., Frostevang, O.M. Akselsen, A.F.H. Kaplan: "Hybrid welding of 45 mm high strength steel sections", Physics Procedia 89, 2017, 11–22.
8. L. Jemblie, V. Olden, P. Mainçon, O.M. Akselsen: "Cohesive zone modelling of hydrogen induced cracking on the interface of clad steel pipes", Int. J. Hydrogen Energy 42, 2017, 28622-28634.
9. S. Tu, X. Ren, B. Nyhus, O.M. Akselsen, J. He, Z. Zhang: "A special notched tensile specimen to determine the flow stress-strain curve of hardening materials without applying the Bridgman correction", Eng. Frac. Mech. 179, 2017, 225-239.
10. L. Jemblie, O.M. Akselsen, V. Olden: "A review of cohesive zone modelling as an approach for numerically assessing hydrogen embrittlement of steel structures". Phil. Trans. R. Soc. A: Math. Phys. Eng. Sci. 375, 2017, Article number 20160411.
11. L. Jemblie, V. Olden, O.M. Akselsen: "A coupled diffusion and cohesive zone modelling approach for numerically assessing hydrogen embrittlement of steel structures", Int. J. Hydrogen Energy 42, 2017, 11980-11995.
12. L. Jemblie, H. Bjaaland, B. Nyhus, V. Olden, O.M. Akselsen: "Fracture toughness and hydrogen embrittlement susceptibility on the interface of clad steel pipes with and without a Ni-interlayer", Mater. Sci. Eng. A685, 2017, 87-94.
13. I. Bunaziv, O.M. Akselsen, A. Salminen, A. Unt: "Fiber laser-MIG hybrid welding of 5 mm 5083 aluminum alloy", J. Mater. Proc. Technol. 233, 2016, 107–114.
14. I. Bunaziv, O.M. Akselsen, X. Ren, A. Salminen: "Hybrid welding possibilities of thick sections for arctic applications", Physics Procedia 78, 2015, 74–83.
15. A. Alvaro, V. Olden, A. Macadre, O.M. Akselsen: "Hydrogen embrittlement susceptibility of a weld simulated X70 heat affected zone under H₂ pressure", Mater. Sci. Eng. 597, 2014, 29-36.
16. A. Alvaro, V. Olden, O.M. Akselsen: "3D cohesive modelling of hydrogen embrittlement in the heat affected zone of an X70 pipeline steel – Part II", Int. J. Hydrogen Energy 38, 2014, 7539-7549.
17. P. Mohseni, J.K. Solberg, M. Karlsen, O.M. Akselsen, E. Østby: "Cleavage fracture initiation at M-A constituents in intercritically coarse grained heat affected zone of a HSLA steel", Metall. & Mater. Trans. 45, 2014, 384-394.
18. V.G. Haugen, B.R. Sørås Rogne, O.M. Akselsen, C. Thaulow, E. Østby: "Local mechanical properties of intercritically reheated coarse grained heat affected zone in low alloy steel", J. Mater. & Design 59, 2014, 135-140.
19. G. Wiklund, O.M. Akselsen, A.J. Sørgerd, A.F.H. Kaplan: "Geometrical aspects of hot cracks in laser hybrid arc welding", J. Laser Applications 25, 2014, 012003-1 – 012003-6.