



Professor Josef Kiendl

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Department of Marine Technology
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Research Interests:

Isogeometric analysis, Finite element methods, Nonlinear structural mechanics, Phase-field modeling of fracture, Fluid-structure interaction, Shape optimization, 3D and 4D printing

Awards:

2017 Highly cited researcher

2016 Richard von Mises Prize

Selected Publications:

Kiendl J, Bletzinger KU, Linhard J, Wüchner R (2009) Isogeometric shell analysis with Kirchhoff-Love shell elements. Computers methods in applied mechanics and engineering 198:3902–3914

R. Schmidt, J. Kiendl, K.-U. Bletzinger, R. Wuechner. Realization of an integrated structural design process: analysis–suitable geometric modelling and isogeometric analysis. Computing and Visualization in Science, 13(7):315–330, 2010.

J. Kiendl, Y. Bazilevs, M. C. Hsu, R. Wüchner and K. U. Bletzinger, “The Bending Strip Method for Isogeometric Analysis of Kirchhoff-Love Shell Structures Comprised of Multiple Patches,” Computer Methods in Applied Mechanics and Engineering, Vol. 199, No. 37-40, 2010, pp. 2403-2416

J. Kiendl. Isogeometric Analysis and Shape Optimal Design of Shell Structures. PhD thesis, Technische Universtitaet Muenchen, 2011.

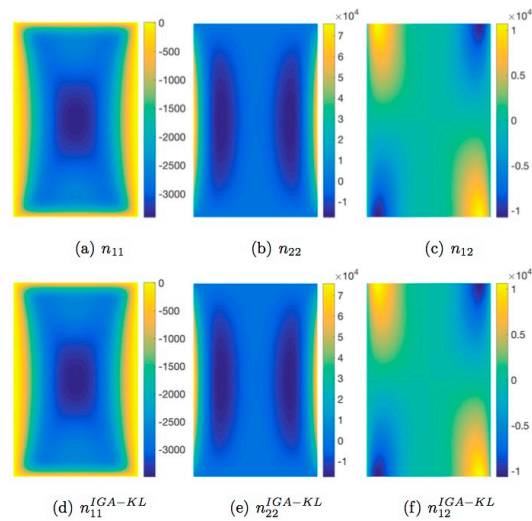


Figure 5: Scordelis-Lo roof, membrane forces. (a)-(c) show results from the presented collocation approach, (d)-(f) are obtained with isogeometric Kirchhoff-Love shell analysis for comparison.

From: Josef Kiendl, Enzo Marino and Laura De Lorenzis, “Isogeometric collocation for the Reissner-Mindlin shell problem”, Computer Methods in Applied Mechanics and Engineering, Vol. 325, pp 645-665, October 2017

Y. Bazilevs, M.-C. Hsu, J. Kiendl, R. Wuechner, and K.-U. Bletzinger. 3D simulation of wind turbine rotors at full scale. Part II: Fluid-structure interaction modeling with composite blades. *International Journal for Numerical Methods in Fluids*, 65(1-3):236–253, 2011.

Nguyen-Thanh N, Kiendl J, Nguyen-Xuan H, Wüchner R, Bletzinger KU, Bazilevs Y, et al. Rotation free isogeometric thin shell analysis using pht-splines. *Comput Methods Appl Mech Eng* 2011;200:3410–3424

Shojaee, S., Izadpanah, E., Valizadeh, N. and Kiendl, J. (2012) Free vibration analysis of thin plates by using a NURBS-based isogeometric approach, *Finite Elements in Analysis and Design*, 61, pp. 23-34

Y. Bazilevs, M.-C. Hsu, J. Kiendl, and D. J. Benson. A computational procedure for prebending of wind turbine blades. *International Journal for Numerical Methods in Engineering*, 89:323–336, 2012.

J.F. Caseiro, R.A.F. Valente, A. Reali, J. Kiendl, F. Auricchio, and R.J Alves de Sousa. On the Assumed Natural Strain method to alleviate locking in solid-shell NURBS-based finite elements. *Computational Mechanics*, 53:1341–1353, 2014.

Josef Kiendl, Ming-Chen Hsu, Michael C.H. Wu and Alessandro Reali, “Isogeometric Kirchhoff-Love shell formulations for general hyperelastic materials”, *Computer Methods in Applied Mechanics and Engineering*, Vol. 291, pp 280-303, July 2015

J.F. Caseiro, R.A.F. Valente, A. Reali, J. Kiendl, F. Auricchio, and R.J Alves de Sousa. Assumed Natural Strain NURBS-based solid-shell element for the analysis of large deformation elasto-plastic thin-shell structures. *Computer Methods in Applied Mechanics and Engineering*, 284:861–880, 2015.

Kiendl J, F. Auricchio L. Beirao da Veiga CL, Reali. A. Isogeometric collocation methods for the Reissner-Mindlin plate problem. *Comput Methods Appl Mech Eng* 2015;284:489–507.

Casquero, H., Liu, L., Zhang, Y., Reali, A., Kiendl, J. and Gomez, H. (2017), "Arbitrary-degree T-splines for isogeometric analysis of fully nonlinear Kirchhoff-Love shells", *Comput.-Aid. Des.*, 82, 140-153.

Josef Kiendl, Enzo Marino and Laura De Lorenzis, “Isogeometric collocation for the Reissner-Mindlin shell problem”, *Computer Methods in Applied Mechanics and Engineering*, Vol. 325, pp 645-665, October 2017

Marreddy Ambati, Josef Kiendl and Laura De Lorenzis, “Isogeometric Kirchhoff-Love shell formulation for elasto-plasticity”, *Computer Methods in Applied Mechanics and Engineering*, Vol. 340, pp 320-339, 1 October 2018