

Research outputs

Numerical modeling of thermal flows in entrance channels for polymer extrusion: A parametric study

Amangeldi, M., Wei, D., Perveen, A. & Zhang, D., Oct 2020, In: Processes. 8, 10, p. 1-13 13 p., 1256.

Optimization of polymer extrusion die based on response surface method

Razeghiyadaki, A., Zhang, D., Wei, D. & Perveen, A., Sep 2020, In: Processes. 8, 9, 1043.

A comparative analysis of sheeting die geometries using numerical simulations

Igali, D., Wei, D., Zhang, D. & Perveen, A., Apr 2020, In: Advances in Computational Design. 5, 2, p. 111-125 15 p.

Generalized stiffness and effective mass coefficients for power-law Euler–Bernoulli beams

Skrzypacz, P. S., Nurakhmetov, D. & Wei, D., Feb 1 2020, In: Acta Mechanica Sinica/Lixue Xuebao. 36, 1

3d fem study of the flow uniformity of flat polypropylene film/sheet extrusion dies

Igali, D., Perveen, A., Wei, D., Zhang, D. & Mentbayeva, A., 2020, *Material Engineering and Application II*. Kaloop, M. (ed.). Trans Tech Publications, p. 369-374 6 p. (Key Engineering Materials; vol. 841 KEM).

Design & optimization of die body for polymer extrusion

Saparov, T., Belgibay, U., Zhang, D., Wei, D., Sun, C. N., Mentbayeva, A. & Perveen, A., 2020, *Material Engineering and Application II*. Kaloop, M. (ed.). Trans Tech Publications, p. 387-392 6 p. (Key Engineering Materials; vol. 841 KEM).

Analysis of dynamic pull-in voltage of a graphene MEMS model

Skrzypacz, P., Kadyrov, S., Nurakhmetov, D. & Wei, D., Feb 2019, In: Nonlinear Analysis: Real World Applications. 45, p. 581-589 9 p.

Dynamic pull-in for micro–electromechanical device with a current-carrying conductor

He, J. H., Nurakhmetov, D., Skrzypacz, P. & Wei, D., Jan 1 2019, (Accepted/In press) In: Journal of Low Frequency Noise Vibration and Active Control.

Generalized stiffness and effective mass coefficients for power-law Euler–Bernoulli beams

Nurakhmetov, D. & Wei, D., Jan 1 2019, (Accepted/In press) In: Acta Mechanica Sinica/Lixue Xuebao. 36, 1, p. 160-175 16 p.

Traveling waves of some symmetric planar flows of non-newtonian fluids

Wei, D. & Shu, Y., Jan 1 2019, In: Journal of Applied and Computational Mechanics. 5, 2, p. 344-354 11 p.

Analytical and numerical investigations of the collapse of blood vessels with nonlinear wall material embedded in nonlinear soft tissues

Ghazy, M., Elgindi, M. B. & Wei, D., Dec 2018, In: Alexandria Engineering Journal. 57, 4, p. 3437-3450 14 p.

Finite element solutions of cantilever and fixed actuator beams using augmented lagrangian methods

Wei, D. & Li, X., Mar 1 2018, In: Journal of Applied and Computational Mechanics. 4, 2, p. 125-132 8 p.

On the application of Sturm's theorem to analysis of dynamic pull-in for a graphene-based MEMS model

Omarov, D., Nurakhmetov, D., Wei, D. & Skrzypacz, P., Jan 1 2018, In: Applied and Computational Mechanics. 12, 1, p. 59-72 14 p.

On the discrete maximum principle for the local projection scheme with shock capturing

Skrzypacz, P. & Wei, D., Sep 1 2017, In: Journal of Computational Mathematics. 35, 5, p. 547-568 22 p.

Solvability of the Brinkman-Forchheimer-Darcy Equation

Skrzypacz, P. & Wei, D., Jan 1 2017, In: Journal of Applied Mathematics. 2017, 7305230.

Nonlinear Waves in Rods and Beams of Power-Law Materials

Wei, D., Skrzypacz, P. & Yu, X., 2017, In: Journal of Applied Mathematics. 2017, 2095425.

Periodic solutions of a graphene based model in micro-electro-mechanical pull-in device

Wei, D., Kadyrov, S. & Kazbek, Z., 2017, In: Applied and Computational Mechanics. 11, 1, p. 81-90 10 p.

Buckling and post-buckling of graphene tubes

Elgindi, M. B., Wei, D., Liu, Y. & Xu, H., Apr 2 2016, In: Mechanics of Advanced Materials and Structures. 23, 4, p. 402-406 5 p.

Numerical Analysis for Retaining Walls Subjected to Swelling Pressure

Wei, D., Yu, L., Zhang, D., Ko, W. & Kim, J., 2016.

Characterization of Corneal Indentation Hysteresis

Ko, M. W. L., Wei, D. & Leung, C. K. S., Nov 4 2015, *2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBC 2015*. Institute of Electrical and Electronics Engineers Inc., p. 7784-7787 4 p. 7320197. (Proceedings of the Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS; vol. 2015-November).

Some analytic and finite element solutions of the graphene Euler beam

Wei, D., Liu, Y. & Elgindi, M. B., Oct 3 2014, In: International Journal of Computer Mathematics. 91, 10, p. 2276-2293 18 p.

Analysis of impact response of RC beams and influencing factors

Wei, D. M. & Liu, D. Y., Jul 1 2014, In: Beijing Ligong Daxue Xuebao/Transaction of Beijing Institute of Technology. 34, p. 119-122 4 p.

An iterative finite difference scheme for buckling of graphene beam subject to axial compressive load

Elgindi, M. B., Wei, D. & Ghazy, M. A., Jan 1 2014, *2014 Middle East Conference on Biomedical Engineering, MECBME 2014*. IEEE Computer Society, p. 79-82 4 p. 6783211. (Middle East Conference on Biomedical Engineering, MECBME).

Buckling and deformation of Hollomon's power-law tubes

Elgindi, M. B., Wei, D., Liu, Y., Kamran, K. & Xu, H., Jan 1 2014, In: Thin-Walled Structures. 74, p. 213-221 9 p.

Optimal numerical flux of power-law fluids in some partially full pipes

Lefton, L., Wei, D. & Liu, Y., Jan 1 2014, In: International Journal of Computational Fluid Dynamics. 28, 6, p. 351-362 12 p.

Similarity solutions for non-Newtonian power-law fluid flow

Wei, D. M. & Al-Ashhab, S., Jan 1 2014, In: Applied Mathematics and Mechanics (English Edition). 35, 9, p. 1155-1166 12 p.

Similarity solutions for non-Newtonian power-law fluid flow

Wei, DM. & Al-Ashhab, S., 2014, In: Applied Mathematics and Mechanics. 35, 9, p. 1155-1166 12 p.

Critical buckling loads of the perfect Hollomon's power-law columns

Wei, D., Sarria, A. & Elgindi, M., Aug 7 2013, In: Mechanics Research Communications. 47, p. 69-76 8 p., 2675.

Existence of equilibrium states of hollow Hollomon cylinders submerged in a fluid

Elgindi, M. B. M. & Wei, D., Jun 11 2013, In: Applied Mathematical Sciences. 7, p. 65-68, p. 3271-3280 10 p.

A note on acoustic propagation in power-law fluids: Compact kinks, mild discontinuities, and a connection to finite-scale theory

Wei, D. & Jordan, P. M., Jan 1 2013, In: International Journal of Non-Linear Mechanics. 48, p. 72-77 6 p.

Finite element analysis of the ramberg-osgood bar

Wei, D. & Elgindi, M., 2013, In: American Journal of Computational Mathematics.

Travelling wave solutions of Burgers' equation for Gee-Lyon fluid flows

Wei, D. & Holladay, K., Nov 12 2012, In: Applied Mathematics E - Notes. 12, p. 129-135 7 p.

On the global solvability of a class of fourth-order nonlinear boundary value problems

Elgindi, M. B. M. & Wei, D., Oct 16 2012, In: Applied Mathematical Sciences. 6, 117-120, p. 5981-5992 12 p.

Some generalized trigonometric sine functions and their applications

Wei, D., Liu, Y. & Elgindi, M. B., Oct 16 2012, In: Applied Mathematical Sciences. 6, 121-124, p. 6053-6068 16 p.

Analytic and finite element solutions of the power-law Euler-Bernoulli beams

Wei, D. & Liu, Y., May 2012, In: Finite Elements in Analysis and Design. 52, p. 31-40 10 p.

Traveling wave solutions of Burgers' equation for power-law non-Newtonian flows

Wei, D. & Borden, H., May 27 2011, In: Applied Mathematics E - Notes. 11, p. 132-138 7 p.

An introduction to linear and nonlinear finite element analysis: a computational approach

Kythe, P. K., Wei, D. & Okrouhlik, M., 2004, In: Applied Mechanics Reviews. 57, 5, p. B25-B25

Penalty finite element approximations of the stationary power-law Stokes problem

Lefton, L. & Wei, D., Dec 1 2003, In: Journal of Numerical Mathematics. 11, 4, p. 301-322 22 p.

Finite element solutions of heat transfer in molten polymer flow in tubes with viscous dissipation

Wei, D. & Luo, H., Jul 2003, In: International Journal of Heat and Mass Transfer. 46, 16, p. 3097-3108 12 p.

A penalty method for approximations of the stationary power-law stokes problem

Lefton, L. & Wei, D., Dec 1 2001, In: Electronic Journal of Differential Equations. 2001, p. XCXXXIII-XCXXXIV

Penalty approximations to the stationary power-law Navier-Stokes problem

Wei, D., Aug 1 2001, In: Numerical Functional Analysis and Optimization. 22, 5-6, p. 749-765 17 p.

Decay estimates of heat transfer to melton polymer flow in pipes with viscous dissipation

Dongming, W. E. I. & Zhang, Z., 2001, In: Electronic Journal of Differential Equations. 2001

A priori L^p error estimates for Galerkin approximations to porous medium and fast diffusion equations

Wei, D. & Lefton, L., Jul 1 1999, In: Mathematics of Computation. 68, 227, p. 971-989 19 p.

A priori L^p error estimates for Galerkin approximations to porous medium and fast diffusion equations

Wei, D. & Lefton, L., 1999, In: Mathematics of Computation. 68, 227, p. 971-989 19 p.

Numerical approximation of the first eigenpair of the p-Laplacian using finite elements and the penalty method

Lefton, L. & Wei, D., Jan 1 1997, In: Numerical Functional Analysis and Optimization. 18, 3-4, p. 389-399 11 p.

Radial Solutions to A Nonlinear P-Harmonic Dirichlet Problem

Saxton, R. & Wei, D., Dec 1 1993, In: Applicable Analysis. 51, 1-4, p. 59-80 22 p.

Existence, uniqueness, and numerical analysis of solutions of a quasilinear parabolic problem

Wei, D., Jan 1 1992, In: SIAM Journal on Numerical Analysis. 29, 2, p. 484-497 14 p.

Existence, uniqueness, and numerical analysis of solutions of a quasilinear parabolic problem

Wei, D., 1992, In: SIAM Journal on Numerical Analysis. 29, 2, p. 484-497 14 p.

Finite element approximation of the first eigenpair of a nonlinear problem

Wei, D., Jan 1 1991, In: Numerical Functional Analysis and Optimization. 12, 5-6, p. 611-620 10 p.

An Existence Theorem for Weak Solution of a Nonlinear Dam Problem

Wei, D., Jan 1 1989, In: Applicable Analysis. 34, 3-4, p. 219-230 12 p.

Finite Element Approximations of Solutions to P-Harmonic Equation with Dirichlet Data

Wei, D., Jan 1989, In: Numerical Functional Analysis and Optimization. 10, 11-12, p. 1235-1251 17 p.

Awards

Projects

Design & Development of Multiphysics Algorithm for Polymer Sheet Processing Die Design

Wei, D., Perveen, A., Zhang, D., Igal, D. & Razeghiyadaki, A.

1/1/21 → 12/31/23

Development and Prototyping of Extrusion Dies for Advanced Plastic Sheets and Thin Film Production

Wei, D.

4/6/18 → 12/31/20

Finite Element Methods for Dirichlet feedback control problems in chemical reaction engineering

Skrzypacz, P. S., Erlangga, Y. A., Golman, B., Wei, D. & Schieweck, F.

3/20/18 → 12/31/20

Modeling and Simulation of Nonlinear Material Structures for Mechanical Pressure Sensing and Actuation Applications

Wei, D.

2/1/17 → 1/2/20

RA.RE: Rapid response fixed astronomical telescope for gamma ray burst observation

Spitas, C., Grossan, B., Wei, D., Insepov, Z., Zhang, D., Abishev, M. & Bibossinov, A.

1/1/20 → 12/31/22

Three-dimensional patient-specific reconstruction of optic nerve head morphology for risk assessment of glaucoma development and progression

Kim, J., Lee, D., Talamona, D., Wei, D., Zhang, D. & Ko, M.

1/1/17 → 12/31/20