

## TABLE OF CONTENTS

|                                                                                                                                                                                            |           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Ahmedov O., Zeman V.</b><br><i>Modelling and modal properties of electric locomotive drive</i>                                                                                          | <b>11</b> |
| <b>Barcikowski M.</b><br><i>Residual strength of an area of FRP damaged by high-velocity impact</i>                                                                                        | <b>15</b> |
| <b>Blatnický M., Falát M., Štauderová M.</b><br><i>Simulation of welding of the workpiece for the evaluation of the multiaxial fatigue of weld joints</i>                                  | <b>19</b> |
| <b>Byrtus M., Zeman V.</b><br><i>Basic properties of nonlinear normal modes</i>                                                                                                            | <b>23</b> |
| <b>Civín A., et al.</b><br><i>Introduction into integral equation method for ring-core residual stress measurement</i>                                                                     | <b>27</b> |
| <b>Darula R., Sorokin S., Stein J. G.</b><br><i>Numerical simulations of electromagnet exposed to vibration</i>                                                                            | <b>31</b> |
| <b>Řurka R., Margetin M.</b><br><i>A critical review on multiaxial fatigue life estimation of metallic materials</i>                                                                       | <b>35</b> |
| <b>Frydryšek K.</b><br><i>Application of probabilistic approach in the design of machine parts and structures</i>                                                                          | <b>39</b> |
| <b>Frydryšek K., Klučka R., Severa M.</b><br><i>Application of probabilistic SBRA method and method of initial parameters for the solution of structures on elastic foundation</i>         | <b>43</b> |
| <b>Garan M., Chumelko V.</b><br><i>Design and verification of the transformation formula for the plastic strain calculation from total strain without knowing the force effect. Part I</i> | <b>47</b> |
| <b>Głowacka A., Jochymczyk-Woźniak K.</b><br><i>Dynamic muscle length analysis for the healthy children and children with neurological disorders</i>                                       | <b>51</b> |
| <b>Hajžman M., Polach P.</b><br><i>Sensitivity analysis of gearbox torsional vibrations</i>                                                                                                | <b>55</b> |
| <b>Halama R., Šofer M., Sedlák J.</b><br><i>A model for cyclic hardening and ratcheting description and its implementation</i>                                                             | <b>59</b> |
| <b>Halama R., Šofer M., Fojtík F.</b><br><i>Calibration of cyclic plasticity model with regard to subsequent fatigue analysis</i>                                                          | <b>63</b> |
| <b>Havlásek P., Jirásek M.</b><br><i>Description of concrete creep based on microprestress-solidification theory</i>                                                                       | <b>67</b> |

|                                                                                                                                   |            |
|-----------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>Jančo R.</b><br><i>FEM approach of solution of beams on elastic foundation</i>                                                 | <b>71</b>  |
| <b>Janda Z.</b><br><i>Nonlinear analysis of reactor containment in software Atena</i>                                             | <b>75</b>  |
| <b>Joszek K., Gzik M.</b><br><i>The project of a knee joint of an artificial lower limb</i>                                       | <b>79</b>  |
| <b>Jureczko P., Jezierski T., Bachorz P.</b><br><i>Prototype of a recumbent bicycle</i>                                           | <b>83</b>  |
| <b>Jureczko P., et al.</b><br><i>Gait analysis of children after resection tumor cerebri</i>                                      | <b>87</b>  |
| <b>Kabeláč J.</b><br><i>Shear stress on arbitrary composite cross section</i>                                                     | <b>91</b>  |
| <b>Kapustinec J., Kintler P., Lorenc P.</b><br><i>Analysis of compliace influence on selected parts in the planetary gear box</i> | <b>95</b>  |
| <b>Kawlewski K., Świtoński E.</b><br><i>Vibration suppresion in bridge crane using fuzzy logic</i>                                | <b>99</b>  |
| <b>Kintler P., Lorenc P., Kapustinec J.</b><br><i>Validation of tire model tmeasy by a virtual vehicle model</i>                  | <b>103</b> |
| <b>Kopp D., Klusák J.</b><br><i>A study of bi-material notches under a combined loading mode</i>                                  | <b>107</b> |
| <b>Kosnáč J.</b><br><i>Solving of electromagnetics problems by coupling of mechanical tasks</i>                                   | <b>111</b> |
| <b>Králík V., Němeček J.</b><br><i>Evaluation of effective elastic properties of aluminium foam using nanoindentation</i>         | <b>115</b> |
| <b>Krpalek D., et al.</b><br><i>Stress strain analysis of human wrist and interaction between carpal bones</i>                    | <b>119</b> |
| <b>Kuběna I., Kruml T.</b><br><i>Mechanical properties of Al thin films measured by microcompression</i>                          | <b>123</b> |
| <b>Kunz L., et al.</b><br><i>Fatigue strength of weathering steel ATMOfIX 52A</i>                                                 | <b>127</b> |
| <b>Majer Z.</b><br><i>The relationship between micro and macro properties of the polymer particulate composite</i>                | <b>131</b> |

|                                                                                                                                                                 |            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>Manek F., et al.</b><br><i>Electric power distribution systems</i>                                                                                           | <b>135</b> |
| <b>Marcían P., et al.</b><br><i>Computational modeling of dental implant interaction with bone tissue</i>                                                       | <b>139</b> |
| <b>Matug M., et al.</b><br><i>Computational model of voice producing element in terms of varying inlet pressure</i>                                             | <b>143</b> |
| <b>Michálek T.</b><br><i>Analysis of the influence of the friction coefficient on the guiding behaviour</i>                                                     | <b>147</b> |
| <b>Navrátil P., et al.</b><br><i>Impact behaviour of a railroad wheel</i>                                                                                       | <b>151</b> |
| <b>Němec I., Weis L.</b><br><i>An efficient and correct algorithm for nonlinear constitutive matrix of a shell</i>                                              | <b>155</b> |
| <b>Němec I., et al.</b><br><i>Dynamic analysis of fall of a high building</i>                                                                                   | <b>159</b> |
| <b>Petříček J., Blekta J., Mevald J.</b><br><i>Driver seat vibroizolation of colliery machine in vertical direction</i>                                         | <b>163</b> |
| <b>Pryl D.</b><br><i>Tensile fatigue of concrete - modelling high-cycle experiments</i>                                                                         | <b>167</b> |
| <b>Riecky D., Novák P., Žmindák M.</b><br><i>Finite element modeling of damage for laminate shell</i>                                                           | <b>171</b> |
| <b>Řehák K., et al.</b><br><i>Strain stress study of hip joint with Burch-Schneider cage</i>                                                                    | <b>175</b> |
| <b>Řoutil L., Veselý V., Seitl S.</b><br><i>Wedge splitting test of quasi-brittle cylinder-shaped specimen: Numerical study on minimal notch length</i>         | <b>179</b> |
| <b>Sacha E., et al.</b><br><i>Procedure of planning the trigonocephaly correction based on finite element method</i>                                            | <b>183</b> |
| <b>Sedlák J., Halama R., Šofer M.</b><br><i>Verification of predictive ability of simple hardening models of Chaboche type</i>                                  | <b>187</b> |
| <b>Seitl S., Hanzlovský R., Fernández-Canteli A.</b><br><i>Numerical support for a tensor description of crack stress field after daughter crack initiation</i> | <b>191</b> |
| <b>Srbová H., et al.</b><br><i>Identification of material parameters of non-linear unidirectional carbon-epoxy composite micromodel</i>                         | <b>195</b> |

|                                                                                                                                                                                             |            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>Staňák P.</b><br><i>Harmonic analysis of axisymmetric circular plate using meshless MLPG method</i>                                                                                      | <b>199</b> |
| <b>Stratil L., et al.</b><br><i>Stress state analysis of sub-sized pre-cracked three-point-bend specimen</i>                                                                                | <b>203</b> |
| <b>Středová D., Paščenko P.</b><br><i>Conical shells under external pressure</i>                                                                                                            | <b>207</b> |
| <b>Šestáková L.</b><br><i>Tuning of an over-deterministic method for calculation of higher-order terms coefficients of the Williams expansion for basic cracked specimen configurations</i> | <b>211</b> |
| <b>Škoda J.</b><br><i>Model of pneumatic drive for gyroscopic stabilizer compensation system</i>                                                                                            | <b>215</b> |
| <b>Šofer M., Halama R., Sedlák J.</b><br><i>Semi-analytical approach for wear assessment in rolling contact</i>                                                                             | <b>219</b> |
| <b>Tomek P., Paščenko P.</b><br><i>Influence of boundary conditions on the loss of imperfect spherical caps</i>                                                                             | <b>223</b> |
| <b>Valášek J., et al.</b><br><i>Stress-strain analysis of save firsth molar tooth with cavity of class II.</i>                                                                              | <b>227</b> |
| <b>Vargas M., Hronek M., Papuga J.</b><br><i>Evaluation of uniaxial fatigue criteria applied on multiaxially loaded unnotched samples</i>                                                   | <b>231</b> |
| <b>Veluri B., Santos-Martin D., Myhre Jensen H.</b><br><i>Analysis of mechanical stresses due to voltage dips in fixed-speed wind turbines</i>                                              | <b>235</b> |
| <b>Vojtek T.</b><br><i>Experiments on fatigue crack propagation in loading modes II and III in metals</i>                                                                                   | <b>239</b> |
| <b>Vořechovský M., Sadílek V., Rypl R.</b><br><i>Probabilistic evaluation of a crack bridge performance in fiber reinforced composites</i>                                                  | <b>243</b> |
| <b>Zouhar M., et al.</b><br><i>Crack stability condition at the interface between two polymer materials</i>                                                                                 | <b>247</b> |