



Forschungszentrum Jülich  
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# **Myocytes in 3D: Resting and Contraction Force Analysis under Nature-like Conditions**

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For my Mom

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# LIST OF SYMBOLS AND ABBREVIATIONS

$\vec{u}$  – displacement

$\vec{F}$  - force

$\vec{f}$  - force density

$\vec{M}$  - torque

$\vec{G}$  - Green tensor

$A$  - area

$a$  – the lowest point of cell-micropillar contact

$a_R$  – square pillar cross-section width

$b_R$  -  $1.18 a_R$  or  $1.05 d_0$  for the square or circular micropillar cross-sections, respectively

$BSA$  – bovine serum albumin

$CLSM$  - confocal laser scanning microscopy

$d$  - cylindrical pillar cross-section diameter

$E$  – Young's modulus

$EBL$  – electron beam lithography

$ECM$  – extracellular matrix

$FAS$  – focal adhesion site

$FBS$  - foetal bovine serum

$FCS$  - foetal calf serum

$HBSS$  - Hank's balanced solution

$I$  – moment of inertia of the cross-section

$I_0$  - moment of inertia of the cross-section at the micropillar base

$ITS$  - insulin-transferrin-sodium selenite

$L$  - length

$l$  – the highest point of cell-micropillar contact

$LC$  – lattice constant

$MEMS$  - microelectromechanical systems

$PBS$  - phosphate buffered saline solution

$PDMS$  - Poly(dimethylsiloxane)

$PEB$  – post-exposure bake

$SEM$  - scanning electron microscopy

$\nu$  – Poisson's ratio

$w$  - width

$x$  – deflection

$\varepsilon$  – strain

$\varepsilon_{\perp}$  - transversal strain

$\varepsilon_{//}$  - longitudinal strain

$\theta$  - angle between the tangent to the pillar at its lower end and the normal to the undeformed surface

$\rho$  – coefficient describing pillar shape change

$\sigma$  - stress

Symbols marked with ~ see chapter 2.3 MODELLING OF ELASTICALLY ANCHORED PILLARS

