

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

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**Kraków, 2010**

For my Mom

I would like to thank my supervisor Professor Rudolf Merkel for giving me opportunity to work in his laboratory, his great help with mathematics in this work and his impressive scientific intuition, with which he solved many 'hopeless' laboratory problems.

A warm regard goes to Dr Bernd Hoffmann for his great help on the difficult field of biochemistry and cytology. I am grateful to both Professor Rudolf Merkel and Dr Bernd Hoffmann for their patience and encouragement.

I thank Professor Józef Mościcki for his unceasing enthusiasm and his belief science is a great adventure.

I am grateful to Professor Bronisław Cymborowski and Professor Jan Fronk for the adventure that made me a scientist.

I thank Dr Robert Stawarz for his art of teaching.

I would like to acknowledge my colleagues who made my time in Jülich fruitful and enjoyable:

Dr Claudia Cesa for teaching, help and scientific discussion.

Dr Norbert Kirchgeßner for writing all algorithms that made this work possible and his great patience when difficulties appeared.

Simone Born and Nils Hersch for advice and making my work considerably easier.

Hans Peter Bochem for SEM measurements.

Alfred Steffen, Jürgen Müller and Fanzl Ringelmann for all the help in the cleanroom.

Mona Nonn and Dr André van der Haart for making the photomasks.

Wolfgang Rubner and Dieter Waschbüsch for support and help.

Last but certainly not least, I thank my Mom and my Husband for their unceasing support.

# 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

$FKS$  - 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

