

TABLE OF CONTENTS

Introduction	VIII
<i>Applications in Biology and Medicine</i>	
A new and simple cryosectioning protocol for pollen analysis under light microscopy <i>Rinaldo P. Santos</i>	3-10
A simple electroporation method of green fluorescent protein-transfection and in vitro imaging of organ-cultured embryonic lingual tissue <i>K. Yoshimura, T. Nashida, M. Mikami and I. Kageyama</i>	11-17
Advances in super-resolution imaging: applications in biology and medicine <i>M. Baztán, P. Fernández-Robredo, S. Recalde, A. García-Layana and M. Hernández</i>	18-26
Application of atomic force microscopy in skin related research <i>A. Olejnik and I. Nowak</i>	27-33
Applications of high-frequency ultrasound microscopy in medicine and biology <i>Y.F. Zhou</i>	34-44
Biophysical Properties of Red Blood Cells Using Optical Tweezers – Applications in Biomedicine <i>Carlos A. L. Silva, Carinna N. Lima, Yandilla S. S. Silva, Diego C. N Silva, Patricia Moura, Beate S. Santos, Goreti Pereira and Adriana Fontes</i>	45-54
Complexes of nucleosomal nanoparticles with proteins: spFRET microscopy study of olaparib and PARP-1 binding to core nucleosomes <i>Nadezhda S. Gerasimova, Maria E. Valieva, Daniel Ch. Sultanov, Ksenia S. Kudryashova, Natalya V. Maluchenko, Elena S. Kotova, Mikhail P. Kirpichnikov, Vasily M. Studitsky and Alexey V. Feofanov</i>	55-61
Confocal laser microscopy: Scanning new structural and functional insights of host-microbe interactions <i>Mohd Sajjad Ahmad Khan, Mohd Musheer Altaf, Abdullah Safar Althubiani and Iqbal Ahmad</i>	62-72
Confocal microscopy and passive staining with the styryl dye FM1-43: a convenient method to evaluate morphometric changes in nodes of Ranvier of single living myelinated axons <i>E. Benoit, C. Mattei, S. C. Brown and J. Molgó</i>	73-80
Current applications of MTT assays conducted under microscopic cytotoxicity analysis in cancerous cells by using therapeutic agents of plant origin <i>H. J. Barrales Cureño, C. Reyes Reyes, J. A. Cortez Ruiz, A. Luna Cruz, P. Andrade Hoyos, E. Zaragoza Ruiz, V. M. Ocaño Higuera, M. C. Calderón Caballero, L. M. Sánchez Herrera, S. Chávez Salinas, L. G. López Valdez</i>	81-88

Cytometric analysis of Zn-based nanoparticles for biomedical applications <i>P. Kielbik, J. Kaszewski, B. S. Witkowski, Z. Gajewski, M. A. Gralak, M. Godlewski, M. M. Godlewski</i>	89-96
Diagnosis of mitochondrial cytopathies using optical and electron microscopy on skeletal muscle <i>Fernández-Valverde F, Ruano-Calderón L, Vargas-Cañas S, Kazakova Ekaterina, Villeda-Hernández J</i>	97-105
Disclosing subcellular details in intact whole-mount vitrified colon cancer cells <i>Delfine Cheng & Filip Braet</i>	106-111
Electron microscopic and physicochemical studies of chaperonin GroEL and GroES complexes <i>Noriyuki Ishii</i>	112-119
Emerging applications of intra-vital smart micro-imaging: from bench-to bedside <i>Gabriel Paré, Réjean Lebel, Jessica Perez, Frédéric Chagnon, Marc-André Bonin, Catherine Bibeau, Issam El Naqa, Eric Marsault, Martin Lepage and Olivier Lesur</i>	120-133
Field Emission Scanning Electron Microscope (FE-SEM) is a useful tool to study thin sections of vertebrate retina <i>B. Boughlala, A. De Juan-Pérez, C. Almansa-Carrascosa, V. López-Belmonte and J. De Juan</i>	134-137
Fluorescence fluctuation spectroscopy in living cells <i>R.A. Migueles-Ramirez, A.G. Velasco-Felix, R. Pinto-Cámara, C.D. Wood, A. Guerrero</i>	138-151
Fluorescence imaging and image analysis of actin dynamics in living cell <i>Ying Xie, Joseph Jun Dao Tan, He Sun and Yansong Miao</i>	152-158
Fluorescence microscopy applied to the analysis of mitotic spindle dynamics <i>Roberta Fraschini</i>	159-166
From the Sertolian syncytium to Sertoli cells in anamniotes, especially Gymnophionan (Caecilian) Amphibians <i>J.-M. Exbrayat</i>	167-174
Herbal medicine for liver protection in experimental animals - a histochemical, pathological study <i>F. Hong, Z. Chen, H.C. Tang, Sharon L. Wu, Jingjing Yang, David T. Yew</i>	175-182
Imaging of liposomal drug delivery systems by atomic force microscopy <i>F. Pires, A. A. Duarte, Q. Ferreira, G. Magalhães-Mota, P. A. Ribeiro and M. Raposo</i>	183-194
Investigating Bacterial Pathogen-host Interaction by Using Scanning Electron Microscopes and Transmission Electron Microscopes <i>Lan Hu</i>	195-201
Laser scanning microdissection - Advantages and pitfalls in forensic diagnosis <i>S. Costa, L. Cainé, M.J. Porto and P. Correia-de-Sá</i>	202-207

Leptin-deficient obese mice: a multi-organ stress model rescued by melatonin <i>A. Stacchiotti, F. Bonomini, A. Lavazza, I. Golic, A. Korac, M. Monsalve, G. Favero and R. Rezzani</i>	208-215
LM and SEM Studies on Tongue and Lingual Papillae in the Donkey (<i>Equus asinus</i>) <i>Hanna Jackowiak, Hassen Jerbi, Kinga Skieresz-Szewczyk and Ewelina Prozorowska</i>	216-222
Locomotion pattern and pace of free-living amoebae – a microscopic study <i>M. Claußen and S. Schmidt</i>	223-230
Micromorphological studies for application in the quality control of herbal medicines – some data of plants used in Mozambique <i>O. Silva and R. Serrano</i>	231-236
Microscopy and microsporidial diagnostics – a case study <i>M. Birkhead, B. Poonsamy, L. Ming Sun, D. du Plessis, E. van Wilpe and J. Frean</i>	237-243
Microscopy and Quantitative Imaging: Novel Applications in Health Research <i>Mohamed Kodiha, Klaudia Bednarz, Dusica Maysinger and Ursula Stochaj</i>	244-252
Microscopy techniques applied to the study of cell death in bacteria from freshwater ecosystems <i>T.P. Silva, J.P. Gamalier, N.S. Resende, N.O. Barros and R.C.N. Melo</i>	253-259
Migration of brain capillary endothelial cells inside poly (lactic acid) 3D scaffolds <i>M.A. Di Bella, I. F. Zummo, F. Carfi Pavia, V. Brucato, Di Liegro, G. Schiera</i>	260-264
Morphological studies of fetal membranes as a tool for researches in marine mammal science <i>F. M. O. Silva, J. P. Guimarães, J. E. Vergara-Parente, M. A. Miglino, D. Alcantara, M. N. Rodrigues, A. L. R. Franciulli, R. C. Carvalho, V. Pavanelo Junior, E. T. Fonseca, C. A. P. Sarmiento, J. S. A. Evangelista</i>	265-268
Morphological techniques used in ichthyopathological diagnosis <i>S.E. Plaul, P.F. Andrés Laube, S.G. Pacheco Marino, C.J. Santamaría Martín, D.A. Moyano and C.G. Barbeito</i>	269-280
Morphology of <i>Chlamydia trachomatis</i> using Transmission Electron Microscopy: An Ultra Structure Experimental Perspective <i>Shamala Moodley</i>	281-288
Morphometric analysis of the bronchiolar arterioles through the normal aging process <i>Marta Ortega-Martínez, Yareth Gopar-Cuevas, Ricardo M. Cerda-Flores, Adriana Ancer-Arellano, María-de-Lourdes Chávez-Briones, Carlos de-la-Garza-González, Laura E. Rodríguez-Flores, Jesús Ancer-Rodríguez and Gilberto Jaramillo-Rangel</i>	289-292
Multiphotonic and Harmonic generation microscopy: an attractive label free imaging and non-destructive observation of collagenic and adipose tissues in pathological muscle context <i>Laurence Dubreil, Mireille Ledevin, Claire Lovo, Thibaut Larcher, Romain Fleurisson, Lydie Guigand and Karl Rouger</i>	293-299

Nanoimaging of RNA Molecules with Atomic Force Microscopy <i>Jamie Gilmore, Katashi Deguchi, and Kunio Takeyasu</i>	300-306
Novel biomedical applications and developments in microscopy <i>G. Aydoğan Kılıç, A. Ersöz, V. Kılıç and R. Say</i>	307-311
Plant-bacteria interaction at the microscope <i>M. del Gallo, C. Ercole, and F. Matteucci</i>	312-317
Ratio imaging microscopy: an update <i>Howard R. Petty</i>	318-321
Recent developments in atomic force microscopy for underwater imaging of biological composite <i>X. Xi, S. Maghsoudy-Louyeh, and B. R. Tittmann</i>	322-328
Stereo and scanning electron microscopy of cocoa beans (<i>Theobroma cacao</i> L.): fungi spoilage susceptibility <i>H. H. Kreibich, E. M. Oliveira, E. H. S. Moecke and V.M. Scussel</i>	329-336
Stereo and scanning electron microscopy of whole post-fermentation dry cocoa (<i>Theobroma cacao</i> L.): healthy beans <i>H. H. Kreibich, E. M. Oliveira, E.H. S. Moecke and V.M. Scussel</i>	337-347
The contribution of TEM to solving issues in the oogenesis of lower metazoans: a comparison between Acoela and rhabditophoran Platyhelminthes <i>A. Falleni, P. Lucchesi and C. Ghezzani</i>	348-358
The use of silicon as a protector against the ink disease in <i>Castanea sativa</i> : A microscopy approach <i>S. M. Monteiro, A. Carvalho, R. Anjos, J. Gomes-Laranjo and T. Pinto</i>	359-366
Up-and-coming Complementary Imaging Technique in Translational Nanomedicine; MALDI-IMS, Confocal Microscopy and NIRF <i>Esra Cansever Mutlu, Muge Sennaroglu Bostan, Hayriye Soytürk Orallar, Arzu Birinci Yildirim, Yakup Ermurat</i>	367-373
Use of antibodies from the same host species in double labeling immunofluorescence on trypanosome cytoskeleton <i>Bernardo Pereira Moreira, Camila Gachet de Castro, Ligia Carolina da Silva Prado, Carol Kobori da Fonseca and Munira Muhammad Abdel Baqui</i>	374-378

Applications in Physical/Chemical Sciences

An Application of Scanning Electron Microscopy to Solar Device Design and Manufacturing <i>M.E. Sánchez-Vergara, M. Leyva-Esqueda and J.R. Álvarez-Bada</i>	381-388
Analysing carbon based hybrid nanocomposites displaying interfacial phenomena with scanning transmission electron microscopy and related techniques <i>P. Rauwel, E. Rauwel</i>	389-400

Application of Scanning Electron Microscopy and Confocal Laser Scanning Microscopy to the study of dough matrix microstructure <i>M.J. Correa</i>	401-409
Biomachining of stainless steel: characterization by microscopic techniques <i>A. Paula Piedade and P. Vasconcelos Morais</i>	410-416
Characterization of Nanostructured Catalysts <i>Shalini Chaturvedi and Pragnesh N Dave</i>	417-422
Field ion microscopy of grain boundaries in high-textured tungsten <i>E. V. Sadanov, I. V. Starchenko and I. M. Mikhailovskij</i>	423-430
Growth of lily flower-like ZnO structures by Successive Ionic Layer Adsorption and Reaction method <i>R. Garza-Hernández, M.R. Alfaro-Cruz, N. Pineda-Aguilar, M. E. Rivas-Aguilar, M. Quevedo López, E. Martínez-Guerra and F.S. Aguirre-Tostado</i>	431-437
Imaging of electrospun nanoparticle electrode materials <i>A.K. Arof, N. Aziz, N.A. Mat Nor, A.S. Rahim and M.Z. Kufian</i>	438-449
Mechanical characterization of polymers on a nanoscale through AFM nanoindentation: A theoretical study on the time-dependent viscoelastic recovery <i>Y.H. Ding, P. Zhang, J.R. Yin, X.H. Deng and Y. Jiang</i>	450-454
Metallography of AHSS steels with retained austenite <i>L. Kučerová, K. Opatová, A. Jandová</i>	455-463
Scanning electron microscopy, atomic force microscopy and optical profilometry applied to adhesive bonding technologies <i>Celso Cruz, Pedro González García, Saúl Santillán Gutiérrez, José Jaime Taha-Tijerina, Rodrigo Romero Llerenas</i>	464-473
SEM, AFM and CLSM microscopic techniques as tools for the characterization of cellulose, polyaluminum and aluminum recovered from Tetra Pak packaging <i>C. Barrera-Díaz, L.I. Ávila Córdoba, F. Ureña-Núñez, G. Martínez-Barrera, V. Varela-Guerrero and L. Rosales-Hernández</i>	474-481
Target preparation and characterization of interfaces in co-sintered metal ceramic composites using imaging and analytical Transmission Electron Microscopy <i>U. Mühle, A. Günther, Y. Standke, T. Moritz, M. Herrmann, J. Gluch, E. Zschech</i>	482-489
Using Combined Microscopy Techniques to Assess Sliding Wear Damage in High Performance Cermets <i>C. Jin, M. Gaier, Z. Memarrashidi, C.C. Onouha, Z.N. Farhat and K.P. Plucknett</i>	490-499

Methods and Techniques

Advances in Crystallographic Image Processing for Scanning Probe Microscopy <i>P. Moeck</i>	503-514
--	---------

Automatic Cell Tracking of Microscopic Imaging of Living Cells by a novel Similarity-based Tracking Algorithm, and the Description of the Kinetics of the Cells for Image-Mining <i>Petra Perner</i>	515-522
Compact SXR microscope with nanometer spatial resolution based on a laser-plasma source and its applications <i>Przemyslaw Wachulak</i>	523-530
Competition for the Confocal Microscope? <i>M. Schropp, Ch. Seebacher, A. Deeg, A. Dovzhenko, Olaf Tietz, K. Palme, and R. Uhl</i>	531-536
Effect of waviness filtering on surface area ratio measurements in microscopy: a numerical study <i>M A Rodríguez-Valverde, P J Ramón-Torregrosa, A Amirfazli and M A Cabrerizo-Vilchez</i>	537-544
Electron Energy Loss Spectroscopy <i>R. K. Zheng</i>	545-586
Interactions between nanoparticles and bacterial structures as seen through software enhanced analysis of electron microscopy images <i>A. Erega, R. Curia and M. Milani</i>	587-594
Light microscopy in combination with computer image analysis for the identification of processed animal protein in feed <i>M. Ottoboni and L. Pinotti</i>	595-601
Multi-approach microscopy techniques to evaluate the cytotoxic effect of chromium (III) on the cyanobacterium <i>Chroococcus</i> sp. PCC 9106 <i>Z. M. Puyen, E. Villagrasa, L. Millach, I. Esteve, J. Maldonado and A. Solé</i>	602-609
On mesoscopic effect of spectral modulation and its potential influence on hyperspectral SNOM imaging results <i>Viktor Palm, Martti Pärs, Ardi Loot, Mihkel Rähn, and Vladimir Hizhnyakov</i>	610-619
PALM/STORM microscopy with a dual objective microscope <i>Zdeněk Švindrych, Martin Ovesný and Guy M. Hagen</i>	620-627
Transmission electron microscopy protocols for capsule visualisation in pathogenic respiratory and meningeal bacteria <i>M. Birkhead, K. Ganesh, K.M. Ndlangisa and H. J. Koornhof</i>	628-639
Ultimate Lateral Resolution in Electron Microscopy by FE-Auger <i>P. Bouckenooge, H. Terry, I. Vandendael</i>	640-654
Variable Pressure-SEM: a versatile tool for visualization of hydrated and non-conductive specimens <i>Lydia-Marie Joubert</i>	655-662

Educational Materials on Microscopy

A simple, fast, inexpensive and efficient method for leukocytes separation with preservation of morphology and cell viability for use in education and research <i>E.A. Kavati, T.M. Hosada, V. Szulczewski, E. Leão, P. Borelli and A.M. Cianciarullo</i>	665-670
Advanced Course on the Cell Biology of Pathogens: a Brazilian, initiative for the South American Science and Biotechnology <i>Marcos A. Vannier-Santos, Ana M. Suarez-Fontes, Renato A. Mortara</i>	671-680
An easily reproducible, Hall-device based demonstration model for Scanning Tunnelling Microscopy (STM) <i>N. Hommrichhausen, M. Kramler, M. Voss, W.M. Heckl and F. Trixler</i>	681-688
Biology workshops with students who exhibit signs of high abilities/giftedness: Knowing to preserve <i>A. M. N. Korres, P. A. D. dos Santos, A. L. Barbosa, M. M. de Oliveira, E. P. Franco and G. Q. dos Santos</i>	689-696
Epi-fluorescence microscopy and 3D printing: An easily implemented approach for producing accurate physical models of micro- and macro- scopic biological samples <i>K.A. Holt and M.S. Savoian</i>	697-702
Learning to diagnose ultrastructural images based on the systematisation of microscopic cellular components <i>J. De Juan, R.M. Pérez-Cañaveras, A. De Juan-Pérez</i>	703-711
Microscopic Evaluation of the Surface Changes of Plasma-treated Silk Fabric – A Learning Material <i>C.W. Kan and M.Y. Li</i>	712-716
Microscopy in Teaching Science: An Interdisciplinary Approach <i>S. I. B. Costa, J. M. Lupinetti, A. S. Pereira, F. A. Santos and P. H. Suegama</i>	717-722
Sample Preparation Techniques for Electron Microscopy 50 Years of SEM and Beyond! <i>Syed Nasimul Alam, Lailesh Kumar, Nidhi Sharma, Pallabi Bhuyan and Sivateja Chinnam</i>	723-730
Virtual microscopy in medical education <i>Rohini Karunakaran, Rajesh Perumbilavil Kaithamanakallam, Bharathi Sengodan, Srikumar P S</i>	731-734