

Frits F.M. de Mul

Publications, Conference contributions, Presentations, Patents.

(Listed under : “Mul, F.F.M. de” ; “De Mul, F.F.M.” ; “DeMul, F.F.M.” etc)

A. Period 1966-1973 (research and development: Radiation Physics / Neutron Physics, IRI, TU Delft, the Netherlands)

(sole author, unless mentioned otherwise)

1. Design of a liquid methane cold neutron source, IRI-reports nr. 132-67-01, 1967.
2. Total cross section measurements of pyrolytic graphite plates for thermal neutrons, IRI reports nr. 132-69-04, 1969.
3. Quasi-elastic incoherent cold neutron scattering in liquid cyclohexanol, Phys.Lett. 33A, 1970, p.87-89. (i.s.m. J. Bregman)
4. Intermediate scattering functions obtained by fast Fourier transformation of cold neutron time-of-flight spectra, Nucl. Instr. Meth. 93, 1971, p.109-120 (i.s.m. J. Bregman).
5. On the analysis of cold neutron time-of-flight spectra using direct fast Fourier transformation, Nucl. Instr. Meth. 98, 1972, p.53.
6. Molecular motions in cyclohexanol and related compounds studied by inelastic cold neutron scattering, Ph.D.-thesis, Delft, 1973.
7. RKSPROG - A computer program for inelastic cold neutron scattering time-of-flight measurements, IRI-reports nr. 132-73--3, 1973.
8. Rotatie- en translatiebewegingen in moleculaire vloeistoffen en vaste stoffen, in: Onderzoek vaste stof en vloeistof met behulp van neutronen, RCN-reports, Petten, 1973.
9. A cold neutron scattering study of dicalcium strontium propionate, Chem.Phys.Lett. 22,1973, p. 476 (i.s.m. J. van Tricht).

B. Period 1973-1976 (VWO-leraar natuurkunde / Physics teacher at secondary school)

(During this period no further publications from the previous period have been published.)

10. Over het gebruik van symbolenketens bij de structurering van de oplossing van natuurkunde-vraagstukken en -problemen, Faraday, 45, 1976, p. 191-194.

C. Period 1976-1980 (University of Twente, Department Applied Physics: solely teaching)

11. J.H.P. van Weeren, F.F.M. de Mul, M. Peters, H. Kramers-Pals, T. Roossink, Teaching problem solving in physics - A course in Electromagnetism, Amer. Journ of Physics, 1982, p. 832 vv;
12. Co-author of various publications of the Education Research Center of the University about "Teaching Electricity and Magnetism at university level".

D. Period 1981-2004 (University of Twente, Fac. Department Applied Physics: teaching and research/development)

Publicationd period 1980-1992.

13. Florisson O., de Mul F.F.M., de Winter H.G., *Raman anemomete rfor component-selective velocity measurements of particles in aflow*, *J. Phys. E: Sci. Instrum.*, 14 pages, 1981, pp. 144-1446,
14. De Mul F.F.M., Florisson O. en Greve J., *Raman anemometry. A method for component-selective velocity measurements of particles in a flow*, *J. Phys. E. .Sci. Instrum.*, 16 pages, 1983, pp. 797-802,
15. De Mul F.F.M., van Spijker J., van der Plas D., Greve J., Aamoudse J.G. and Smits T.M., *Mini laser-doppler (blood)flow monitor with diode laser source and detection integrated in the probe*, *Appl. Optics*, 23 pages, 1984, pp. 2970-2973,
16. De Mul F.F.M. en Greve J., *Raman-(micro).spectroscopie en biologische toepassingen*, *LAB/ABC*, pages, 1984, pp. 8-12,
17. De Mul F.F.M., Otto C. and Greve J., *Raman microscopy of Intact Chromosomes and Related Compounds*, *.SPIE 492*, 1984, pp. 482-485,
18. De Mul F.F.M., Reith J.Th.M. and Greve J., *A mini La.ser-Doppler flow monitor, with a solid state laser and the detection integrated in the probe*, II. SPIE proceedings 492, pages, 1984, pp. 121-125,
19. De Mul F.F.M., Otto C. and Greve J., *Raman microscopy of intact chromosomes and related compounds*, *.SPIE-proceedings 492*, 1984, pp. 482-485,
20. Otto C., van Welie A., de Jong E., de Mul F.F.M., Mud J. en Greve J., *Two small-volume electrochemical cells for the measurements of surface enhanced Raman scattering*, *J. Phys E. .Sci. Instr.*, 17 pages, 1984, pp. 624626,
21. De Mul F.F.M. en Greve J., *Raman-(micro)spectroscopie en biologische toepassingen*, *LAB/ABC*, pages, 1984, pp. 8-12,
22. De Mul F.F.M., Reith J.Th.M. and Greve J., *A mini La.ser-Dopplerflow monitor, with a solid state laser and the detection integrated in the probe*, II. SPE proceedings 492, pages, 1984, pp. 121-125,
23. De Mul F.F.M., Buiteveld H., Lankester J., Mud J. en Greve J.: *Raman microscopy in human pathology.*, *Human Pathology*, 15 pages, 11 1984, pp. 1062-1068,
24. De Grooth B.G., de Mul F.F.M. en Greve 1., *Gated Raman Spectroscopy (GRAS): A new experimental approach for the measurement of Raman signals of particles in suspension*, *Rev. .Sci. Instrum.*, 55 pages, 2 1984, pp. 169-171,
25. Buiteveld H., de Mul F.F.M., Mud J. en Greve J., *Identification of inclusions in lung tissue with a Raman microprobe*, *Appl. Spectr.*, 38 pages, 3 1984, pp. 304-306,
26. De Mul F.F.M., van Welie A., Otto C., Mud J. en Greve J., *Micro-Raman spectroscopy of chromosomes*, *J. Raman Spectr.*, 15 pages, 4 1984, pp. 268-272,
27. Mud J., Otto C., de Mul F.F.M. en Greve J., *Raman microspectroscopy of LiDNA in Ethanol and tert-Butanol*, *Journal of Raman Spectroscopy*, 16 pages, 6 1985, pp. 373-376,
28. Otto C., van den Tweel T.J.J., de Mul F.F.M. and Greve J., *Surface Enhanced Raman .Spectroscopy of DNA-bases*, *Journal of Ramanspectroscopy*, 17 pages, 1986, pp. 289-298,
29. De Mul F.F.M., Hottenhuis M.H.J., Bouter P., Greve J., Arends J. en ten Bosch 1.1., *Micro-Raman line broadening in carbonated hydroxyapatite*, 1. *Dental Research*, 4 pages, 1986, pp. 437-440,
30. Suichies H.E., Aarnoudse J.G., Smits T.M., Jentink H.W., de Mul F.F.M. and Greve J., *.Skin bloodflow in normal neonates during active and quiet sleep mea.sured with a .semiconductor laser doppler instrument*, *Int. J. Microcirculation*, 5 pages, 2-mrt 1986, pp. 253-

31. Otto C., de Mul F.F.M. en Greve J., *A raman spectroscopical study of the interaction between nucleotides and the DNA binding protein gp32 of bacteriophage T4*, Biopolymers, 26 pages, 1987, pp. 1667-1689,
32. Otto C., de Mul F.F.M. and Greve J., *.Surface Enhanced Raman scattering of molecules of biological interest*, Chapter in: Spectroscopic and Structural Studies of Biomedical Materials, J. Twardowski, ed., Sigma Press, Wilmslow, G.B., pages, 1987, pp. -,
33. Jentink, H.W., van Beurden J.A.J., Helsdingen M.A., de Mul F.F.M., Suichies H.E., Aarnoudse J.G. and Greve J., *A compact differential laser Doppler velocimeter using a semiconductor laser*, J. Phys. E: Sci. Instrum., 20 pages, 1987, pp. 1281-1283,
34. Otto C., Huizinga A., de Mul F.F.M. and Greve J., *.Surface enhanced scattering of compounds related to DNA-Bases*, Laser scattering spectr. of biol. object. Stud. in Phys. and Theor. Chemistry 45. Eds.: J. Stepanek, P. Anzenbacher and B. Sedlacek, Elsevier, pages, 1987, pp. 181-189,
35. Gijsbers G., Vrensen G., Willekens B., Maatman D., de Mul F. and Greve J., *Raman microspectroscopic Investigations of Human Eye Lenses*, Laser scattering spectr. of biol. objects. Stud. in Phys. and Theor. Chemistry 45. Eds.: J. Stepanek. P. Anzenbacher and B. Sedlacek, Elsevier, pages, 1987, pp. 583-594,
36. Otto C., de Mul F.F.M., Greve J., Turpin P.Y. and Chinsky L., *A Raman- and Resonance Raman study of the Interaction of gene product 32 with poly-RA and poly-DA*, Laser scattering spectr. of biol. objects. Stud. in Phys. and Theor. Chemistry 45. Eds.: J. Stepanek, P. Anzenbacher and B. Sedlacek, Elsevier, pages, 1987, pp. 433-440,
37. Otto C., de Mul F.F.M., Greve J., Turpin P.Y. and Chillsky L., *A Raman- and Resonance Raman study of the Interaction of gene product 32 with poly-RA and poly-lA*, Laser scattering spectroscopy of biological objects. Studies in Phys. and Theor. Chemistry 45. Eds.: J. Stapsnek, P. Anzenbacher and B. Sedlscek, pages, 1987, pp. 433-440,
38. Otto C., de Mul F.F.M., Harmsen B.J.M. and Greve J., *A Raman scattering study of the helix-destabilizing gene-S-protein with adenine-containing nucleotides*, Nucleic Acids Research, 15 pages, 18 1987, pp. 7605-7625,
39. Suichies H.E., Aarnoudse J.G., Okken A., Jentink H.W., de Mul F.F.M. and Greve J., *Forehead skin blood flow in normal neonates during active and quiet sleep, measured with a diode laser doppler instrument*, Acta Paediatr Scandinavia, 77 pages, 1988, pp. 220-225,
40. De Mul F.F.M., Otto C., Greve J., Arends J. and ten Bosch J.J., *Calculation of the raman line broadening upon carbonation in synthetic hydroxyapatite*, J. of Raman Spectroscopy, 19 pages, 1988, pp. 13-21,
41. De Mul F.F.M., Otto C., Greve J., et al., *Raman (Alicro)spectroscopy*, Chemisch Weekblad/Chemisch Magazine, 14 pages, 1988, pp. 271 -272,
42. De Mul F.F.M., Otto C., Greve J., et al., *Raman (Aficro)spectroscopy*, Chemisch Weekblad/Chemisch Magazine, 18 pages, 1988, pp. 341 -342,
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44. De Mul F. F.M., Otto C., Greve J., et al., *Raman (Micro)spectroscopy*, Chemisch Weekblad/Chemisch Magazine, 32 pages, 1988, pp. 457-
45. De Mul F.F.M., Otto C., Greve J., et al., *Raman (Micro)spectroscopy*, Chemisch Weekblad/Chemisch Magazine, 35 pages, 1988, pp. 517-528,
46. Jentink H.W., Hermesen R.G.A.M., de Mul F.F.M., Suichies H.E., Aarnoudse J.G. and Greve J., *Tissue perfusion measurements using a mini diode laser Doppler perfusion sensor*, SPIE Microsensors and Catheter-Based Imaging Technology, 904 pages, 1988, pp. 51 -56,

47. Otto C., Chinsky L., Turpin P.Y., de Mul F.F.M., Hannsen B.J.M. and Greve J., *Resonance Raman spectroscopy of complexes of the helix destabilizing proteins gp32 and gpS with poly(rA) and poly(dA)*, J. Biomol. Struct. and Dynamics, 6 pages, 1988, pp. 35-49,
48. Graaff R., Aarnoudse J.G., de Mul F.F.M. and Jentink H.W., *Improved expressions for anisotropic scattering in absorbing media*, SPIE proceedings 1029, 1988, pp. 103- 110,
49. Bot A.C.C., Vrensen G.F.J.M., de Mul F.F.M. and Willekens B., *Position defined water content of human and rabbit lenses, A Raman microspectroscopic investigation*, Ophthalmic Res., 20 pages, 1988, pp. 93-
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51. Jentink H.W., de Mul F.F.M., Suichies H.E., Aarnoudse J.G. and Greve J., *Small laser Doppler velocimeter based on the self-mixing effect in a diode laser*, Applied Optics, 27 pages, 2 1988, pp. 379-385,
52. Otto C., de Mul F.F.M., Huizinga A. and Greve J., *Surface Enhanced Raman Scattering of Derivatives of Adenine. The Importance of the Externial Amino Group in Adenine for Surface Binding*, Journal of Physical Chemistry, 92 pages, 5 1988, pp. 1239-1244,
53. De Mul F.F.M., *Raman-(Aticr).Spectroscopie*, Laboratoriumpraktijk, pages, 1989, pp. 55-57,
54. Huizinga H., Bot A.C.C., de Mul F.F.M., Vrensen G.F.J.M. and Greve J., *Local Variation in Absolute Water Content of Human and Rabbit Eye Lenses Measured by Raman Microscopy*, Exp. Eye Res., 48 pages, 1989, pp. 487-496,
55. Bot A.C.C., Huizinga A., de Mul F.F.M., Vrensen G.F.J.M. and Greve J., *Raman Microspectroscopy of Fixed Rabbit and Human Lenses and Lens Slices: New Potentialities*, Exp. Eye Res., 49 pages, 1989, pp. 161-169,
56. Graaff R., Aarnoudse J.G., de Mul F.F.M., Jentink H.W., *In Scattering and Diffraction*, Proceedings SPIE, Editor H.A. Ferwerda, 1029 pages, 1989, pp. 103-110,
57. Scholten T.A.H.M., Lucassen G.W., Koelewijn E., de Mul F.F.M. and Greve J., *Non-Resonant Background Suppression in Preresonance CARS spectra of FAD: Demonstration of a Background Suppression Technique using Phase Mismatching and Comparison with the Polarization-Sensitive CARS Technique*, Journal of Raman Spectroscopy, 20 pages, 1989, pp. 503-516,
58. Graaff R., Aarnoudse J.G., de Mul F.F.M., and Jentink H.W., *Light propagation parameters for anisotropically scattering media based on a rigorous solution of the transport equation*, Applied Optics, 28 pages, 12 1989, pp. 2273-2279,
59. Suichies H.E., Aarnoudse J.G., Okken A., Jentink H.W., de Mul F.F.M. and Greve J., *Skin bloodflow changes during apneic spells in preterm infants*, Early Humall Development, 20 pages, 3-apr 1989, pp. 155-163,
60. Scholten T.A.H.M., Lucassen G.W., de Mul F.F.M. and Greve J., *Possibilities and Limitations of offresonance Polarization sensitive CARS of short chain Proteins*, Optics Communications, 72 pages, 5 1989, pp. 328-334,
61. Jentink H.W., Helsdingen M.A., de Mul F.F.M., Suichies H.E., Aarnoudse J.G. and Greve J., *On the construction of small differential laser Doppler velocimeters using diode lasers*, Intemational Journal of Optoelectronics, 4 pages, 5 1989, pp. 405-414,
62. Scholten T.A.H.M., Lucassen G.W., de Mul F.F.M. and Greve J., *Nonresonant background suppression in CARS spectra of dispersive media using phase mismatching*, Applied Optics, 28 pages, 7 1989, pp. 1387-1400,
63. Koelink M.H., de Mul F.F.M., Graaff R., *Laser Doppler bloodflowmetingen in de huid*, Klinische Fysica, I pages, 1990, pp. 12-18,

64. Schyns M.W.R.J., Huizinga A., Vrensen G.F.J.M., de Mul F.F.M. and Greve J., *Paraformaldehyde Fixation and Some Characteristics of Lens Proteins as Measured by Raman Microspectroscopy*, Exp. Eye Res., 50 pages, 1990, pp. 331-333,
65. Jentink H.W., Hermsen R.G.A.M., de Mul F.F.M., Graaff R. and Greve J., *Monte Carlo simulations of laser Doppler bloodflow measurements in tissue*, Applied Optics, 29 pages, 1990, pp. 2371-
66. Suichies H.E., Brouwer C., Aarnoudse J.G., Jentink H.W., de Mul F.F.M. and Greve J., *Skin bloodflow changes, measured by laser Dopplerflowmetry, in the first week after birth*, Early Human Development, 23 pages, 1990, pp. 1-8,
67. Puppels G.J., de Mul F.F.M., Otto C., Greve J., Robert-Nicoud M., Arndt-Jovin D.J. and Jovin T.M., *Studying single living cells and chromosomes by Confocal Raman Microspectroscopy*, Nature, 347 pages, 1990, pp. 301-303,
68. Koelink M.H., de Mul F.F.M., Greve J., Graaff R., Dassel A.C.M. and Aarnoudse J.G., *Depth dependent laser Doppler perfusion measurements. Theory and instrumentation*, SPIE 'Laser Applications in Life Sciences', 1403 pages, 1990, pp. 347-349,
69. Puppels G.J., Huizinga A., Krabbe H.W., de Boer H.A., G0sbers G. and de Mul F.F.M., *A high-throughput Raman notchfilter*, Rev. Sci. Instrum., 61 pages, 12 1990, pp. 3709-3712,
70. Puppels G.J., Colier W., Olminkhof J.H.F., Otto C., de Mul F.F.M. and Greve J., *Description and Performance of a Highly Sensitive Confocal Raman Microspectrometer*, Journal of Raman Spectroscopy, 22 pages, 1991, pp. 217-225,
71. Puppels G.J., Olminkhof J.H.F., Segers-Nolten G.M.J., Otto C., de Mul F.F.M. and Greve J., *Laser Irradiation and Raman Spectroscopy of Single Living Cells and Chromosomes: Sample Degradation Occurs with 514.5 nm but not with 660 nm Laser Light*, Experimental Cell Research, 195 pages, 1991, pp. 361 -367,
72. Dassel A.C.M., Aarnoudse J.G., Bminsllla K., Graaff R., Koelink M.H., de Mul F.F.M. and Greve J., *Forehead versus foot skin bloodflow in normal neonates during active and quiet sleep, measured by laser Dopplerflowmetry*, Proceedings: Fetal and Neonatal Physiological measurements (Eds. H.N. Lafeber, J.G.Aarnoudse, H.W. Jongsma), Noordwijkerhout, 967 pages, 1991, pp. 177-180, ISBN 0-444-81438-8
73. Graaff R., Dassel A.C.M., Aarnoudse J.G., Zijlstra W.G., Heida P., de Mul F.F.M., Koelink M.H. and Greve J., *Biophysical aspects of reflection pulse oximetry*, Proceedings: Fetal and Neonatal Physiological measurements (Eds. H.N. Lafeber, J.G. Aarnoudse, H.W. Jongsma), Noordwijkerhout, 967 pages, 1991, pp. 129-134, ISBN 0444-81438-8
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75. Jentink H.W., de Mul F.F.M., Graaff R., Suichies H.E., Aarnoudse J.G. and Greve J., *Laser Doppler flowmetry: measurements in a layered perfusion model and Monte Carlo simulations of measurements*, Applied Optics, 30 pages, 18 1991, pp. 2592-2597,
76. Puppels G.J., Garritsen H.S.P., Segers-Nolten G.M.J., de Mul F.F.M. and Greve J., *Raman microspectroscopic approach to the study of human granulocytes*, Biophysical Journal, 60 pages, 5 1991, pp. 1046-1056,
77. Koelink M.H., de Mul F.F.M., Greve J., Gmaff R., Dassel A.C.M. and J.G. Aarnoudse, *Monte Carlo simulations and measurements of signals in laser Doppler flowmetry on human skin*, Proceedings: SPIE 'TimeResolved Spectroscopy and Imaging of Tissues', Eds.: B. Chance and A. Katzir, Los Angeles, U.S.A., 1431 pages, 23-24 jan 1991, pp. 63-72, ISBN 0-8194-0521 -3
78. Koelink M.H., Slot M., de Mul F.F.M., Greve J., Graaff R., Dassel A.C.M. and Aarnoudse J.G., *Glass-fibre self-mixing diode-laser Doppler velocimeter*, Meas. Sci. Technol., 3 pages, 1992, pp. 33-37,

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80. Kumar K.-N.P., Zaspalis V.T., de Mul F.F.M., Keizer K. and Burggraaf A.J., *Thermal Stability of Supported Titania Membranes*, Mat. Res. Soc. Symp. Proc., 271 pages, 1992, pp. 499-504,
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82. Graaff R., Aarnoudse J.G., Zijp J.R., Sloot P.M.A., de Mul F.F.M., Greve J. and Koelink M.H., *Reduced light-scattering properties for mixtures of spherical particles: a simple approximation derived from Mie calculations*, Applied Optics, 31 pages, 10 1992, pp. 1370-1376,
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85. Suichies H.E., Aarnoudse M.D.J.G., Wouda A.A., Jentink H.W., de Mul F.F.M., Greve J., *Digital Blood Flow in Cooled and C.ontralateral Finger in Patients with Raynaud's Phenomenon. C.omparative Measurements Between Photoelectrical Plethysmography and Laser Doppler Flowmetry*, Angiology-The Jourtlal of Vascular Diseases, 43 pages, 2 1992, pp. 134-141,
86. Hoeben F.B., de Mul F.F.M., Stokkink H.S.D., Koelink M.H. and Greve J., *A monitoring device for pressurised-air-driven diaphragm-ba.ved artif cial heart a.ssi.vt devices*, Clin. Phys. Physiol. Meas., 13 pages, 2 1992, pp. 161-166,
87. de Mul F.F.M., Koelink M.H., Weijers A.L., Greve J., Aarnoudse J.G., Gr-kaff R. and Dassel A.C.M., *.S'elf-mixing laser-Doppler velocimetry of liquidflow and of blood perfusion in tissue*, Applied Optics, 31 pages, 27 1992, pp. 5844-5851,

Publications, conference contributions etc. from 1990 ¹

Journal articles

88. Booiij, W.E., Jong, A. de, & Mul, F.F.M. de (1995). Flow Profile Study using miniature Laser-Doppler velocimetry. *American journal of physics*, 1028-1033.
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90. Bolt, RA; de Mul, FFM , *Goniometric instrument for light scattering measurement of biological tissues and phantoms* , REVIEW OF SCIENTIFIC INSTRUMENTS, 73 (5): 2211-2213 MAY 2002
91. Bolt, RA; de Mul, FFM , *Goniometric instrument for light scattering measurement of biological tissues and phantoms* ,REVIEW OF SCIENTIFIC INSTRUMENTS, 73 (8): 3133-3133 AUG 2002
92. Graaff, R., Koelink, M.H., Mul, F.F.M. de, Zijlstra, W.G., Dassel, A.C.M., & Aarnoudse, J.G. (1993). Condensed Monte Carlo simulation for the description of light transport. *Applied optics* 32 (4), 426-434.
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¹ Due to a transition to another departmental documentation system rare overlaps might be present.

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 97. Hoelen, C.G.A., & Mul, F.F.M. de (1999). A new theoretical approach to photoacoustic signal generation. *Journal of the Acoustical Society of America* 106, 695-706.
 98. Hoelen, C.G.A., Dekker, A., & Mul, F.F.M. de (2001). Detection of Photoacoustic Transients Originating from Microstructures in Optically Diffuse Media such as Biological Tissue. *IEEE transactions on ultrasonics, ferroelectrics and frequency control* 48 (1), 37-47.
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 100. Hoelen, C.G.A., Mul, F.F.M. de, Pongers, R., & Dekker, A. (1998). Three-dimensional photoacoustic imaging of blood vessels in tissue. *Optics letters* 23 (8), 648-650.
 101. Jentink, H.W., Mul, F.F.M. de, Graaff, R., Suichies, H.E., Aarnoudse, J.G., & Greve, J. (1991). Laser Doppler flowmetry: measurements in a layered perfusion model and Monte Carlo simulations of measurements. *Applied optics* 30 (18), 2592-2597.
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 103. Kharine, A., Manohar, S., Seeton, R., Kolkman, R.G.M., Bolt, R.A., Steenbergen, W., & Mul, F.F.M. de (). Poly(vinyl alcohol) gels for use as tissue phantoms in photoacoustic mammography. *Physics in medicine and biology*. 48, 2003, 357-370.
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