Amir Goldbourt

CMI-P-47

Professor, Tel Aviv University (Israel)
Email: amirgo@tauex.tau.ac.il
Website: http://kuwari.tau.ac.il
Social Media: https://x.com/GoldbourtNMRlab

Research Keywords

Solid state nuclear magnetic resonance, Structural virology, NMR methods and developments

Academic Career

PhD in Chemical Physics, Weizmann Institute of Science (supervisor Shimon Vega) 2003. Postdoc biomolecular NMR, Columbia University (supervisor Ann E McDermott) 2007. Joined Tel Aviv University, school of chemistry, 2007. Tenured 2013. Full professor since 2019. Holds the Nathan Cummings Chair for Natural Products in Medicine Chair since 2025. Chair, Department of Physical Chemistry 2023-26. Main research: Solid-state NMR-based structural chemistry, biology and virology. Supervised 9 MSc students, 11 PhD students, and 1 postdoc. 84 publications.

Selected Publications

O. S. Lusky, D. Sherer, A. Goldbourt (2024) "Dynamics in the Intact fd Bacteriophage Revealed by Pseudo 3D REDOR-Based Magic Angle Spinning NMR JACS AU, 4, 3619–3628

Y. Shamir, A. Goldbourt (2023) "Atomic-Resolution Structure of the Protein Encoded by Gene V of fd Bacteriophage in Complex with Viral ssDNA Determined by Magic-Angle Spinning Solid-State NMR", J. Am. Chem. Soc. 145, 300-310

S. Kedem, R. R. Hassid, Y. Shamir, A. Goldbourt (2022) "Conformational changes in Ff phage protein gVp upon complexation with its viral single-stranded DNA revealed using magic-angle spinning solid-state NMR", Viruses. 14, 1264

O. S. Lusky, M. Meir, A. Goldbourt (2021) "Characterizing Hydrogen Bonds in Intact RNA from MS2 Bacteriophage Using Magic Angle Spinning NMR", Biophys. Rep. 1, 100027

T. Aharoni, A. Goldbourt (2018) "Dynamics and rigidity of an intact filamentous bacteriophage virus probed by magic-angle spinning NMR", Chemistry - A European Journal. 24, 8737-8741

H. Ivanir, E. Nimerovsky, PK Madhu, A. Goldbourt (2015) "Site-resolved backbone and side-chain intermediate dynamics in a carbohydrate-binding module protein studied by magic-angle spinning NMR", Chem Eur.J., 21, 10778-10785

O. Morag, N. G. Sgourakis, D. Baker, A. Goldbourt (2015) "The NMR-Rosetta capsid model of M13 bacteriophage reveals a quadrupoled hydrophonic packing epitope", Proc. Natl. Acad. Sci. 112(4), 971-976.

Why My Lab?

My lab can offer...

We are a world-leading laboratory for NMR characterization of viruses, viral proteins, and protein-nucleic acid interactions in viruses. We have a specialized molecular biology facility for the production of proteins and

viruses. We have an operational state-of-the-art 600MHz solid-state NMR spectrometer with multiple-probes suitable of biological investigations. We recently purchased a new 700MHz spectrometer capable of record-high sample spinning (>110 kHz) facilitating 1H NMR studies of biological samples and allowing significant reduction of sample quantities required for research (planned for installation Nov 25). We posses all specialized software for data analysis, and support an environment for the development of new techniques and NMR methodologies, new software design, and advanced analysis procedures. In summary, we have an all-around lab for the production, analysis, and characterization of viral systems, with emphasis on filamentous phages and more.