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Curriculum Vitae
Tsachi Livneh

Personal Details

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Education

1987-1990 B.Sc. in Chemistry, *cum laude*
The Hebrew University of Jerusalem
1991-1997 Ph.D. in Physical Chemistry
The Hebrew University of Jerusalem
Advisor: Prof. Micha Asscher
Title: "The Photo and Thermal Chemistry of Molecules Adsorbed on Well-Defined Surfaces".

Employment History

1991-1996 Teaching Assistant, Physical Chemistry Dep., The Hebrew University
1997-2006 Researcher, Physical Chemistry Dep., NRCN, Israel
Recipient of the "Katzir" Scholarship.
2007-2011 Head of "Chemical-Physics of surfaces" group, Physics Dep., NRCN, Israel
2009 -2017 Senior Researcher, Physics Dep., NRCN, Israel
2018- A+ rank Senior Researcher

Sabbaticals

8/2003-8/2004 Visiting Scientist, Chemistry Dep. University of California Santa Barbara
6/2011-10/2011 Visiting Prof., Materials Engineering Dep. Drexel University, Philadelphia
10/2011-2/2012 Visiting scientist, Materials and Interfaces Dep., The Weizmann institute, Israel
10/2018-10/2019 Visiting scientist, Materials and Interfaces Dep., The Weizmann institute, Israel

Scientific Publications

1. Romm L., **Livneh T.**, and Asscher M. "Collision induced desorption of water on Ru (001) ", *J. Chem .Soc .Faraday T.* **1995**, 91, 3655.

2. **Livneh T.**, Romm L., and Asscher M. "Cage formation of N_2 under overlayers of water on Ru (001)", *Surf. Sci.* **1996**, 351, 250.

3. **Livneh T.** and Asscher M. "Work- function study of adsorption, lateral repulsion and fragmentation of CH_3Br on Ru(001) " *J. Phys. Chem. B* **1997**, 101, 7505.

4. **Livneh T**. and Asscher M. "The chemistry of CH_3Cl and CH_3Br on Ru(001)", *Langmuir* **1998**, 14, 1348.

5. **Livneh T.** and Asscher M. " The surface chemistry of CH_3Br and methyl, modified by copper deposition on Ru(001)", *J. Phys. Chem. B* **1999**, 103, 5665.

6. **Livneh T.**, Lilach Y., and Asscher M." Dipole-dipole interactions among CH_3Cl molecules on Ru(001): Correlation between work-function change and thermal desorption studies ", *J. Chem. Phys.* **1999**, 111(24), 11138.

7. **Livneh T.** and Asscher M." The adsorption and decomposition of C_2H_4 on Ru(001): A combined TPR and $\Delta\Phi$ study", *J. Phys .Chem. B* **2000**, 104, 3355.

8. **Livneh T.**, Bar-Ziv. E., Salatino P., Seneca O. "Evolution of reactivity of highly porous chars from Raman microscopy" *Combust. Sci. Technol.* **2000,** 153, 65.

9. Gal G., Sgulim S. and **Livneh T.** "Polar angle velocity distribution of ground level atomic silicon in the laser ablated silica plume", *J. Appl. Phys.* **2001,** 89(3), 1927.

10. Lilach Y., Romm L., **Livneh T.** and Asscher M., "The First Layers of Water on Ru(001)" , *J. Phys. Chem. B* **2001**, 105, 2736.

11. Cernia Z., **Livneh T.**, Pri-Bar I. and Koresh Y. "Mode assignment of linear Phenyl Acetylene sequence: Phenyl Acetylene, Di-Phenyl Acetylene and 1,4- Di(phenylethynyl) benzene", *Vib. Spectrosc.* **2001**, 25(2), 119.

12. **Livneh T.**, Band. A. and Tenne R. "Raman scattering from peroxide ion on Cs_2O_2" *J. Raman Spectrosc.* **2002**, 33, 67.

13. **Livneh T.**, Haslett T.L. and Moskovits M. "Distinguishing disorder- induced from allowed Raman bands in graphite"**,** *Phys. Rev. B* **2002**, 66 (19), 195110.

14. **Livneh T.** and Moskovits M. "Surface enhanced Raman Spectroscopy of carbon nanotubules deposited on colloidal silver self-affine fractal surface" *"J. Appl. Phys*. **2002**, 92, 3517.

15. **Livneh T.** and Asscher M. " Photoinduced fragmentation of multilayer CH_3Br on Cu/Ru (001) surface.", *J. Phys. Chem. B* **2003**, 107, 11382.

16. Band A., Albu-Yaron A., **Livneh T.**, Cohen H., Feldman Y., Shimon L., Popovitz-Biro R., Lyahovitskaya V. and Tenne R. "Characterization of oxides of Cesium**"** *J. Phys. Chem. B* **2004**, 108, 12360.

17. Wu Y., **Livneh T.**, Zhang Y. X, Cheng G.S, Wang J.F, Tang J., Moskovits M., and Stucky G. D " Templated synthesis of highly Ordered mesostructured nanowires and nanowire arrays" *Nano Let.* **2004,** 4, 2337.

18. **Livneh T.** and Sterer E., "The effect of pressure on the multiphonon Raman scattering in UO_2" *Phys. Rev. B* **2006**, 73, 085118.

19. **Livneh T.**, J.P. Zhang, G.S. Cheng and Moskovits M. "Polarized Raman scattering from single GaN nanowires*" Phys. Rev. B* **2006**, 74, 035320.

20. Moskovits M., Jeong D-H, **Livneh T.**, Wu Y. and Stucky G. D. "Engineering nanostructures for single-molecule Surface-Enhanced Raman Spectroscopy "*Isr. J. Chem.* **2006**, 46, 283.

21. Shemer G., Tirosh E., **Livneh T.** and Markovich G. "Tuning a colloidal synthesis to control Co^{+2} doping in ferrite nanocrystals" *J. Phys. Chem. C* **2007**, 111, 14334.

22. **Livneh T.** "Coupling of LO phonons to crystal-field excitations in UO_2 studied by Raman spectroscopy", *J. Phys- Condens. Mat.* **2008**, 20, 085202.

23. Benamar G., Schweke D., Bloch J., **Livneh T.** and Mintz M.H. " The very initial stage of hydride formation on polycrystalline gadolinium" *J. Alloys Compd.* **2008**, 477, 188.

24. Avisar D. and **Livneh T.** "Raman scattering by phonons and crystal-field excitations in cerium hydrides" *J. Alloys Compd.* **2010**, 494, 11.

25. **Livneh T.** and Sterer E "Resonant Raman scattering at exciton states tuned by pressure and temperature in *2H*-MoS_2 *Phys. Rev. B* **2010**, 81, 195209.

26. Benamar G., Schweke D., Shamir N., Zalkind S., **Livneh T.**, Danon A., Kimmel G. and Mintz M.H." Heat pretreatment-induced activation of gadolinium surfaces towards the initial precipitation of hydrides" *J. Alloys Compd.* **2010**, 498, 26.

27. Shamir N., Schweke D, Rubin A, **Livneh T.** and Zalkind S "Carbon enhanced hydriding of oxidized U-0.1w%Cr surfaces" *Mater. Sci. Eng.* **2010**, 9, 012037.

28. **Livneh T.**, Lilach Y., Popov I. , Kolmakov A. and Moskovits M." Polarized Raman from a single segmented SnO_2 wire" *J. Phys. Chem. C* **2011**, 115, 17270.

29. Schweke D., Maimon H., Chernia Z. and **Livneh T.**," Monitoring the *in- situ* oxide growth on uranium by UV-Visible reflectance spectroscopy" *J. Appl. Phys*. **2012**, 112**,** 093104.

30. Tsverin Y., **Livneh T**., Rosentsveig R., Zak A. Pinkas I. and Tenne R. "Photocatalysis with Hybrid Co- coated WS_2 nanotubes " *Nanomater. Energy* **2012**, 2(1), 25.

31. Noked O., Malchior A., Shuker R., **Livneh T.**, Steininger R., Kennedy B.J. and Sterer E. "Pressure induced amorphization of $La_{1/3}TaO_3$" *J. Solid State Chem.* **2013**, 202**,** 38.

32. Chen G., Sun G., Ding Y.J., Prete P., Miccoli I., Lovergine N., Shtrikman H., Kung P., **Livneh T.**, and Spanier J." Direct measurement of band edge discontinuity in individual core-shell nanowires by photocurrent spectroscopy" *Nano Let.* **2013**, 13, 4152.

33. Manis-Levy H., **Livneh T.**, Zukerman I., Mintz M.H. and Raveh A. " Effect of radio-frequency and low-frequency bias voltage on the formation of amorphous carbon films deposited by plasma enhanced chemical vapor deposition*" Plasma Sci. Technol.* **2014**, 16, 254.

34. **Livneh T.** and Spanier J. "A Comprehensive multiphonon spectral analysis in MoS_2" *2D Mater.* **2015**, 2, 035003.

35. Avisar D. and **Livneh T.** "Raman scattering of *A*-Type Ce_2O_3" *Vib. Spectrosc.* **2016**, 86, 14.

36. Zalkind S., Rafailov G., Halevy I., **Livneh T.**, Rubin A., Maimon H., Schweke D. "Uranium oxidation kinetics monitored by *in-Situ* X-Ray diffraction" *J. Nuc. Mater.* **2017**, 485, 202.

37. **Livneh T.**, Dumcenco D. O and Pinkas I. "Determining alloy composition in $Mo_xW_{(1-x)}S_2$ from low wavenumber Raman spectroscopy" *J. Raman Spectrosc.* **2017**, 48(5), 773.

38. Kraynis O.,Wachtel. E., Lubomirsky I. and **Livneh T.** "Inelastic relaxation in Gd-doped ceria films: Micro-Raman spectroscopy", *Script. Mater.* **2017**, 137, 123.

39. Grinberg O., Avrahami R., Zussman E., **Livneh T.** and Zak A. "Raman scattering from single WS_2 nanotubes embedded within stretched PVDF electrospun fibers", *Phys. Chem. Chem. Phys.* **2017**, 19,18443.

40. **Livneh T.**, Reparaz S. and Goni A. "Low temperature resonant Raman asymmetry scattering in *2H*-MoS_2 under high pressure", *J. Phys- Condens. Mat.* **2017**, 29, 435702.

41. Kraynis O., Makagon E., Mishuk E., Hartstein M., Wachtel. E., Lubomirsky I. and **Livneh T.** "Suitability of Raman spectroscopy for assessing anisotropic strain in thin films of doped ceria", *Adv. Funct. Mater.* **2019**, 1804433

42. Kraynis O., Lubomirsky I. and **Livneh T.** "Resonant Raman Scattering in undoped and Lanthanide-doped CeO_2" *J. Phys. Chem. C* **2019**, 123, 24111

43. P. Chithaiah, S. Ghosh, A. Idelevich, L. Rovinsky, **T. Livneh**, and A. Zak "Solving the "MoS_2 nanotubes" synthetic enigma and elucidating the route for their catalyst-free and scalable production"*ACS Nano* **2020**, 14, 3004

44. T. M. Brenner, C. Gehrmann, R. Korobko, **T. Livneh**, D. A. Egger and O. Yaffe "Anharmonic host lattice dynamics enable fast ion conduction in superionic AgI" *Phys. Rev. Materials* **2020**, 4, 115402

45. **T. Livneh** and D. Avisar "Raman microscopy study of cerium hydride growth centers, overlayered by hydrogen-incorporated thin oxide overlayer" *J. Phys. Chem. C* **2020**, 124, 28018

Professional Activities

Referee for:
Physical Review Letters
Physical Review B
Applied Physics Letters
Journal of the American Chemical Society
The Journal of Physical Chemistry B, C
Nano Letters
Journal of Raman Spectroscopy
Journal of High-Pressure Research
Solid State Communications
Scientific Reports
Journal of Physics Communications
Materials Characterization
Journal of Nuclear Materials

Israel Science Foundation

Thesis Supervision

David Avisar "Raman Spectroscopy of Cerium Hydrides and Oxides" (co-supervising with Prof. Shlomo Efrima, Chemistry Department Ben-Gurion University, Negev). MSc. Thesis submitted in March 2005.

Shahar Aziza "Spectroscopic Characterization of Lanthanide Hydrides and Oxyhydrides" (co-supervising with Prof. Shmuel Hayun, Materials Engineering Department Ben-Gurion University, Negev). Ph.D. candidate, starting from 1/2018.