

## Assaf Tal

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### Education

Ph.D. Physics, Weizmann Institute of Science, 2008 (Expected): *The Acquisition of Spatially Encoded Signals in Magnetic Resonance Spectroscopy and Imaging*. The main focus of my Ph.D. in experimental physics was the development of reconstruction algorithms and pulse sequence design for the fast acquisition of images in magnetic resonance imaging (MRI) and spectroscopy (MRS) in the presence of highly inhomogeneous fields.

M.Sc. Physics, Weizmann Institute of Science, 2003: *The Generation and Quantification of Entanglement in Quantum Information*. My M.Sc. in theoretical physics examined the possibility of producing entanglement, the most basic resource in quantum information processing, using particle collisions.

B.Sc. Physics, Hebrew University, Jerusalem, 2001, *Cum Laude*

### Employment

Young@Science Weizmann Institute of Science  
Personal Mentor 2005–2006  
Mentoring kids from deprived homes in science and mathematics.

Young@Science Weizmann Institute of Science  
Mathematics Teacher 2004–2005  
Teaching mathematics as part of the Weizmann Institute's commitment to the advancement of Ethiopian pupils in Israel's education system.

### List of Publications

“Method and Apparatus for the Acquisition of High Definition Images in Inhomogeneous Environments.” A. Tal, B. Shapira and Lucio Frydman. Preliminary Patent Filed.

“Spectroscopic imaging from spatially-encoded single-scan multidimensional MRI data“, A. Tal, L. Frydman, J. Mag. Res. 189 (1): 46-58 (2007)

“Spatial encoding and the single-scan acquisition of high definition MR images in inhomogeneous fields“ A. Tal, L. Frydman, J. Mag. Res. 182 (2): 179-194 (2006)

“Translational entanglement by collisions and half-collisions“ L. Fisch, A. Tal and G. Kurizki, Int. J. Mod. Phys. B 20 (11-13):1648-1660 (2006)

“A continuous phase-modulated approach to spatial encoding in ultrafast 2D NMR spectroscopy“, A. Tal, B. Shapira and L. Frydman, J. Mag. Res 176(1): 107-114 (2005)

“Translational entanglement and teleportation of matter wavepackets by collisions and half-collisions“, L. Fisch, A. Tal and G. Kurizki, Int. J. Mod. Phys. B 19 (26):3897-3921 (2005)

“Translational entanglement via collisions: How much quantum information is obtainable?“, A. Tal, G. Kurizki, Physical Review Letters 94 (160503) (2005)

## **Skills**

A strong foundation in various programming languages, including MATLAB, C, C++, Python and Mathematica, and a broad interest in algorithms in general and artificial intelligence in particular.

Good command of web-based technologies, including HTML, MySQL and Python.

Good presentational skills, both in writing and orally.

Experience teaching both entire classes and individuals.

Bilingual (English and Hebrew).

## **Honors and Awards**

Journal of Magnetic Resonance cover paper, November 2008

Invited lecture, 3rd Polish-Israeli NMR Workshop, 2007

Invited lecture, Annual Meeting of the Israeli Magnetic Resonance Society, 2007

Participant of Bat Sheva ASEO Seminar on Alternative Sustainable Energy Options for academically outstanding students, 2007

Clore Scholarship for Excellence in Research (Awarded to 10 PhD Students per Year), 2006

Journal of Magnetic Resonance, Most Downloaded Paper of July-August, 2006

Conference Poster, Minerva Guenter Symposium, Eilat, Israel, 2005

Recipient of the Wolf scholarship for academic excellence, 2000

## **Personal Information**

American and Israeli citizenships.

Hobbies: playing piano and guitar, programming, music recording, teaching, reading, recreational mathematics.