Sharon Shwartz received his B.A. in physics from the Technion in 2001. His dissertation under the supervision of Professor Moti Segev focused on studying the significant light-induced changes in the optical, mechanical, and electrical properties of the semiconductor CdZnTe. Sharon was among the first six awardees of the prestigious Adams Fellowships for doctoral students, awarded by the Israel Academy of Sciences and Humanities. In 2008, he completed his doctorate and joined the group of Professor Stephen Harris at Stanford University as a postdoctoral fellow. Motivated by the construction of the world's first x-ray free-electron laser, Sharon began exploring the possibilities of extending concepts of laser physics known at visible wavelengths to x-ray wavelengths.

In October 2012, Sharon joined the physics department at Bar-Ilan University as a faculty member. He continues his research on nonlinear and quantum phenomena in the x-ray portion of the electromagnetic spectrum. In particular, Sharon explores fundamental phenomena associated with high fields at x-ray wavelengths and develops new techniques to probe the world around us at atomic spatial and temporal scales. Sharon Shwartz and his group have made groundbreaking contributions to the field of X-ray quantum and nonlinear optics, including:

1. Describing how to generate polarization-entangled photons at X-ray energies through spontaneous parametric down-conversion.
2. Demonstrating enhanced measurement capabilities using quantum properties of X-rays.
3. Achieving the generation and manipulation of true single X-ray photons, and leveraging their quantum correlations for improved detection.
4. Observing frequency doubling for the first time in the X-ray regime.
5. Pioneering X-ray ghost imaging using an incoherent laboratory source.
6. Developing innovative applications of X-ray ghost imaging for chemical element mapping and computed tomography (CT) with scattered radiation.