

Dr. Noboru Yamada



He was born on 14th August 1951 in Kyoto, a beautiful ancient capital in Japan, and grown up in neighboring city (Ohtsu) beside Lake Biwa, the largest lake in Japan.

He studied electronics and material science at Kyoto University, Electronics Department during 4/1970-3/1974, and directly entered Panasonic Corporation, Central Research Laboratory. His work there has been R/D of memory devices utilizing the laser-induced rapid and reversible phase-change mechanism of chalcogenide thin films.

He wrote Ph.D. thesis "Study on phase-change materials and their application to optical memories" under advisor, Prof. Dr. H. Matsunami (Kyoto University) during 8/1998-11/2000 and obtained Ph. D, 3/2001.

His chief achievements with his fine colleagues at Panasonic and other collaborator were as follows; i.e.,

- 1) Founding of the rapid reversible phase-change phenomenon between amorphous and metastable cubic phase of $\text{GeTe-Sb}_2\text{Te}_3$ pseudo-binary alloys.
- 2) Various world-first products of rewrite-able phase-change optical disks including new technologies on material compositions and device structures; e.g., PCR optical disk with 500 MB capacity in 1990 (130 mm in diam.), professional-use digital AV disk with 6 GB (300 mm in diam.), rewrite-able DVD (DVD-RAM) with 4.7 GB capacity in 2000, single /dual layer Blu-ray Disc with 25/50 GB capacity in 2004, and triple-layer Blu-ray Disc with 100 GB in 2011.
- 3) Characterization of rapid phase-change materials and proposal of the rapid crystallization mechanism, for example: "Cubic model" (2000: J. Apply. Phys., 2001. Jpn. J. Apply. Phys.), "Extremely large thermal vibration" (2001: Phy. Rev. B, 2004: Jpn. Appl. Phys.) and "Bond inter-change model"(2011: Nature Materials).
- 4) Author or co-author of more than 50 original papers, more than 50 proceedings at international conference, and more than 650 patents (>150 Japanese patents and >500 foreign patents).

He was awarded "2001: Matsushita Science Award", "2002: The Japan Society of Applied Physics Outstanding Paper Award", "2005: Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology, Science and Technology Award", "1999/2005/2006/2009: ISOM Best Paper Award", "2008/2009: PCOS Best Paper Award", and "2007: Recognition of meritorious person in invention of intellectual property by Osaka Prefectural Governor."

He is now a general manager of the Storage media group, Digital and Network Development Centre, Panasonic Corporation.