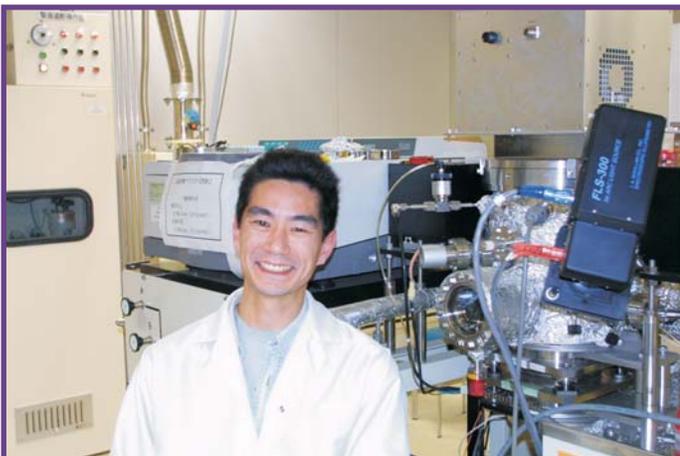


Dr. Fujiwara was first introduced to ellipsometry during a post-doctoral position at Penn State University. While there he worked with one of the world's leading *in situ* ellipsometry researchers, Professor Robert Collins. This was a very valuable experience that has enhanced Dr. Fujiwara's research back in Japan. It also provided him the opportunity to establish world-wide contacts in the ellipsometry research community.

For the past six years, Dr. Fujiwara has been a research associate at the National Institute of Advanced Industrial Science and Technology (AIST) in Japan. His primary research involves real-time characterization of thin film silicon growth by *in situ* spectroscopic ellipsometry, combined with real-time infrared attenuated total reflection (ATR) spectroscopy. Spectroscopic ellipsometry is used to determine the physical properties of thin-film structures. The ATR setup measures the hydrogen states (Si-H bonding) simultaneously to increase the real-time knowledge during processing. The photo below shows Dr. Fujiwara next to his system, which houses a Woollam M-2000 for the *in situ* spectroscopic ellipsometry. Dr. Fujiwara's efforts are leading to a better understanding of the growth process for hydrogenated amorphous silicon and microcrystalline silicon used for solar cell fabrication.

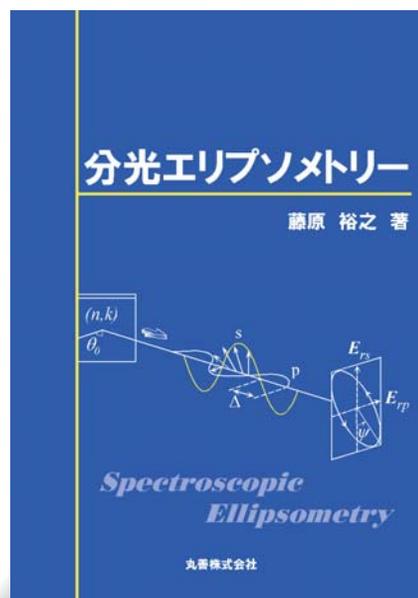
Dr. Fujiwara's research has led to about 50 publications. He has also attended about 50 conferences. Twenty of these conferences were international, which allowed him to see the world. His favorite conference was in 1997 at the Second International Conference on Spectroscopic Ellipsometry (ICSE-2) in Charleston, North-Carolina. At that time, he was at Penn State University and helped organize the conference.

His wealth of ellipsometry experience and knowledge was put to good use as he prepared the first book on spectroscopic ellipsometry published in Japanese



language. It has received considerable acclaim and has become very important for training in Japan. Unfortunately, there are no current plans to translate it into English, so some of us need to start learning Japanese. Writing a book is a major task and Dr. Fujiwara devoted half of a year to preparation, and half a year to actual writing. The book was published in 2003 (see figure).

Although his research keeps Dr. Fujiwara very busy, he still finds time to play with his two year old son, Yuuya. We enjoy Dr. Fujiwara's cheerful enthusiasm for ellipsometry and wish him the best luck in his future research. We know we will continue see great work from him.



Dr. Fujiwara's book describes theory and applications of SE. It is published by Maruzen Co., Ltd. and is available for purchase at <http://pub.maruzen.co.jp>.

Publications:

1. H. Fujiwara, M. Kondo, and A. Matsuda, "Real-time characterization of free-carrier absorption during epitaxial Si p-layer growth", *Applied Physics Letters* **82**, 122 (2003)
2. H. Fujiwara, M. Kondo, and A. Matsuda, "Interface-layer formation in microcrystalline Si:H growth on ZnO substrates studied by real-time spectroscopic ellipsometry and infrared spectroscopy", *Journal of Applied Physics* **93**, 2400 (2003)
3. H. Fujiwara, M. Kondo, A. Matsuda, "Real-time spectroscopic ellipsometry studies of the nucleation and grain growth processes in microcrystalline silicon thin films", *Physical Review B* **63**, 115306 (2001)
4. H. Fujiwara, J. Koh, P. I. Rovira, and R. W. Collins, "Assessment of effective-medium theories in the analysis of nucleation and microscopic surface roughness evolution for semiconductor thin films", *Physical Review B* **61**, 10832 (2000)