

CdTe thin-film solar cells: history and state of the art

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CdTe thin-film solar cells are currently the only thin-film photovoltaic cells produced on a large scale. In fact, CdTe is an extremely stable and robust material, with relative ease of preparation given the very favorable phase diagram and allowing high efficiencies. This seminar will illustrate the peculiarities of this technology with a historical overview of the advancement of research over the years. New applications such as flexible cells, bifacial cells, and semitransparent cells would allow applications for building integration and agrivoltaics. Finally, the issue of the material's alleged toxicity will be addressed.

Brief presentation

Since 2024, I have been a full professor at the University of Verona and head of a research group and laboratory (Laboratory for Photovoltaics and Solid State Physics) for the preparation of thin films (especially for the preparation of photovoltaic cells).

I have been and still am a member of the Scientific Committee of all editions of the European Photovoltaic Solar Energy Conference from 2010 until today. I was the organiser within the E-MRS Spring Meeting of the Symposium 'Thin Film Chalcogenide Solar Cells' in 2010, 2012 and 2014 and remained a member of the Scientific Committee.

I have worked in several laboratories at the University of Verona (I), the Swiss Federal Institute of Technology in Zurich (CH) and the University of Parma (I). I obtained my PhD at the Swiss Federal Institute of Technology (ETH) - Zurich in 2002 and graduated in Physics in the extraordinary session 1994/1995 at the University of Parma.

I have authored more than 170 international publications including articles in scientific journals and conference proceedings, five book chapters and seven patents (listed below). I have been invited to numerous international conferences and workshops (listed below).

I have been and am the supervisor of several PhD papers (5 completed and 2 pending) and 12 dissertations. At the time of writing this CV, I lead a research group consisting of one RTDA researcher, two PhD students and three postdocs.