Refractive Index Spectra Collections for TFTB thin film toolbox

Multilayer analysis software can only be as good as the optical constants that it uses. The data collections in this archive combine all publicly available refractive index data I could find on the Web, with the exception of those data still buried in scientific publications. The index spectra collections also contain functions for MATLAB and Octave that allow the data files to be read by the TFTB thin film toolbox.

sopra

A collection of optical constant data that is distributed free by the French company SOPRA S.A., a maker of ellipsometry equipment. Origin and quality of the data is not known to me. I have reformatted the files to make them easier to read.

windt

A collection of refractive index data that are distributed by David Windt together with his imd software (http://www.rxollc.com/windt). Emphasis is on short wavelengths (x-rays). Contains many data sets from Edward Palik’s "Handbook of Optical Constants".

palik

Refractive index data from Edward Palik, Handbook of Optical Constants I & II, Published by the Optical Society of America. Data are of high quality, with references to original publications. Some data files for optically active materials have a different format and must be read "manually". A value of -0.0001 is used to indicate missing data.

freesnell

A collection of optical constant data that is distributed with FreeSnell (http://people.csail.mit.edu/jaffer/FreeSnell/) Most data appear to be from fairly recent publications, which makes it possible to evaluate the data quality and uncertainty. Some data for polymers.

litho

A small collection of refractive index spectra in the visible and UV, mostly for lithography related materials. Some were obtained from publications or data sheets, and some were measured at NIST using ellipsometry.

rii

Refractive index data from the main "book" of http://refractiveindex.info, compiled by Mikhail Polyanskiy. The data were converted from their native .yaml format into tables and functions that can be used by the toolbox.

various

Index spectra from different, usually commercial sources such as www.filmetrics.com and www.pvlighthouse.com.au. The uncertainty of the data is unknown, references to original publications are included in the files where available.

analytic

MATLAB & Octave functions for refractive indices that can be calculated from a Sellmeir or Cauchy (or similar) formula.

http://refractiveindex.info is a wonderful new source of refractive index data. The site is maintained by Mikhail Polyanskiy who seems to be continuing where E. Palik left off.

Installation
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When the refractive index data collections are used with the MATLAB & Octave thin film toolbox they should be installed as follows:

Windows: unzip the data into the root folder 'tftb' of the thin film toolbox. The read_*.m functions are then automatically in the MATLAB / Octave search path when the 'tftb' folder is in the search path.

Linux / Unix: either unzip the data into the root directory 'tftb' or unzip it anywhere and create a symbolic link in the root directory:

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tftb$ ln -s anywhere/nk ./nk
```

Please report inconsistencies, problems, and errors.

Ulf Griesmann, September 2014
ulf.griesmann@nist.gov
ulfgri@gmail.com