

Department (for example University of...)

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# A BEAUTIFUL TEX TEMPLATE FOR THE PERFECTIONIST

Subtitle (main title, for example A review of...)

Subsubtitle (thesis of...)

Date goes here

Daniel Ríos Linares

---



"TITLE GOES HERE"

D. Daniel Ríos Linares

I authorize the fair use of this template only for those who seek the appealing to the eye of their readers.

Signed. Daniel Ríos Linares,

Granada, September 6, 2019

A handwritten signature in black ink, appearing to be 'DL' with a stylized flourish.



# AGRADECIMIENTOS

Acknowledgements to stackoverflow and all the good and bad examples of people in my life.



*"Science is fun  
when you know the secret"*  
*Daniel Ríos Linares*





# RESUMEN

**Palabras clave:** TeX, template, cool.

## Resumen

Bla bla bla, lorem ipsum bla bla bla.



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## CAPÍTULO I

# INTRODUCTION

### 1 Need some help over here

Hi, I am Daniel and this is my TeX template.

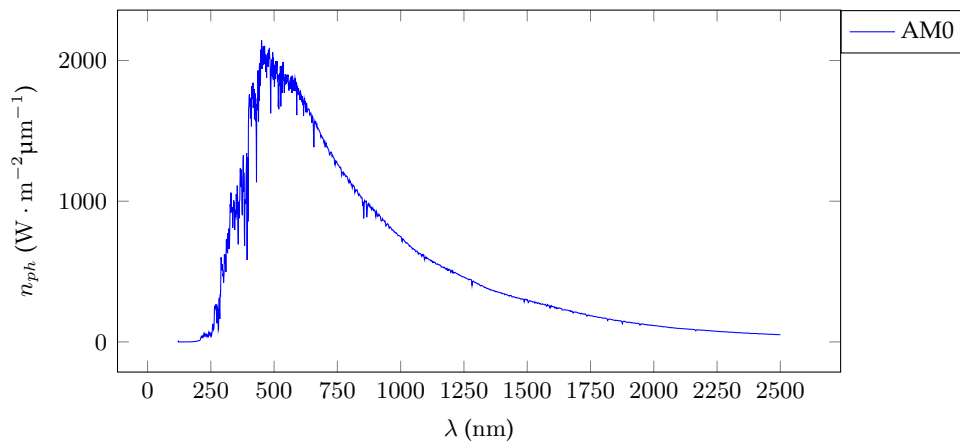
If you need help you can contact me via Telegram @riosL (more desirable) or sending me an email to riv@hotmail.es starting with the subject [TEX TEMPLATE] ISSUE WITH...

### 2 Hello World

If you have to modify a field in the template just find for the text you want to change in the MAIN.TEX file. Do not delete a file called RESOURCES/HEADER.TEX or the RESOURCES/ASSETS, it's there for some reason! Bibliography is modified directly from the file RESOURCES/BIBLIOGRAPHY.TEX follow the examples or make your own one. Images are stored inside RESOURCES/IMAGES you should create folders inside as a catalog of the different chapters/sections. Data (raw data specially for those who plot graphics) is stored inside RESOURCES/DATA.

### 3 Check out cool stuff you can do

Plots, cool huh?



**Figura I-3.1:** Referencia spectrum ASTM G-173-03 (ISO 9845-1, 1992)

Source code for programmers, cool huh?

```
1 material = {'name' : 'GaAs'}
```

(a) p.py - made in Python

```
1 static PyObject *
2 create_a_new_dict(PyObject *self, PyObject *args) {
3
4     PyObject *p_dict;
5
6     p_dict = PyDict_New();
7
8     PyDict_SetItem(p_dict, PyUnicode_FromString("name"),
9                     PyUnicode_FromString("GaAs"));
10
11     return p_dict;
12
13 }
```

(b) f.f90 - made in CPython

**Código fuente I-3.1:** CPython API examples

## 4 Tweaks

For language you have to go to RESOURCES/HEADER.TEX and change things like "Figure" over "Figura" or "Src" over "Código Fuente". Sorry :3

## 5 You can also make it!

Check out some examples of pdfs made with this template:

- Bachelor's degree final Thesis made by me, the author  
[https://drive.google.com/open?id=10hjvBQ6CMQ1LT\\_o2a-sV4\\_vW-6zey3BU](https://drive.google.com/open?id=10hjvBQ6CMQ1LT_o2a-sV4_vW-6zey3BU)

## 6 Known bugs :( yeah...I said that

In the TOC there are multiple Bibliography sections but it's false, just...wait for finishing the pdf and then use a tool like Adobe Creator XI to delete it manually...I am sorry :(

# Lista de tablas





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# Bibliografía

## Física del estado sólido

- [UN84] Pedro Cartujo Estébanez, Francisco Rubio Royo, Antonio Hernández Cachero, José Mira Mira, Francisco Serra Mestre, Luis A. A. Bailón Vega. "Electrónica I (Electrónica Física)". Vol. 1-2, Ministerio de Educación y Ciencia, Universidad Nacional de Educación a Distancia, GREFOL Madrid 1984.
- [Pie03] Robert F. Pierret. "*Advanced Semiconductor Fundamentals*". 2nd Edition, Vol. VI, Modular Series on Solid State Devices, Pearson Education.
- [SSL09] Sheng S. Li. "*Semiconductor Physical Electronics*". 2nd Edition, Springer.
- [BS09] Ben G. Streetman, Sanjay Kumar Banerjee "*Solid State Electronic Devices*". 6th Edition, Microelectronics Research Center, University of Texas at Austin, PHI Learning, 2009.

## Óptica

- [FT92] Sh. A. Furman and A. V. Tikhonravov. "*Basics of Optics of Multilayer Systems*". Éditions Frontières, 1992.
- [HAM10] H. Angus Macleod. "*Thin-film optical filters*". 4th edition, CRC Press, 2010.
- [OH90] Koji Ohta and Hatsuo Ishida. "*Matrix formalism for calculation of the light beam intensity in stratified multilayered films, and its use in the analysis of emission spectra*" Applied Optics, Vol. 29, No. 16, 1 June 1990.
- [Nil78] N. G. Nilsson. "*Empirical approximations for the Fermi energy in a semiconductor with parabolic bands*" Applied Physics, Letter 33 653 (1978)
- [Wol61] P. A. Wolff. "*Theory of the Band Structure of Very Degenerate Semiconductors*" Physical review, Vol. 126, No. 2, 10 November 1961.
- [Wol77] P. A. Wolff. "*The effect of electron interaction on the band gap of extrinsic semiconductors*" Journal of Physics, Solid State Physics 9 1177, 1977.
- [MJW02] Marvin J. Weber. "*Handbook of optical materials*". CRC Press, 2002.
- [Ada87] Sadao Adachi. "*Model dielectric constants of GaP, GaAs, GaSb, InP, InAs, and InSb*". Physical Review B 35 (14) (1987) 7454–7463.
- [13] A. D. Rakic, M. L. Majewski. "*Modeling the optical dielectric function of GaAs and AlAs: Extension of Adachi's model*". Journal of Applied, Physics 80 (10) (1996) 5909–5914.

## Energía solar

- [AS03] Antonio Luque, Steve Hegedus. *"Handbook of photovoltaic science and engineering"*. 2nd edition, Wiley, 2003
- [B39] Becquerel E. Recherches. *"Sur les effets de la radiation chimique de la lumiere solaire au moyen des courants electriques"* Comptes Rendus Acad Sci. 1839;9:145–149
- [SAZ18] Samy Almosni, Amaury Delamarre, Zacharie Jehl, Daniel Suchet, Ludmila Cojocaru. *"Material challenges for solar cells in the twenty-first century: directions in emerging technologies"* Science and Technology of Advanced Materials, Vol.19 Issue 1. Pages 336-369 10 Apr 2018.
- [NREL] National Renewable Energy Laboratory. Recurso en línea. <https://www.nrel.gov/pv/>

## Propiedades de los materiales

- [PKS98] John A. Dean. *"Lange's handbook of chemistry"* In *International Association of Science and Technology for Development*, 1998. IASTED 1998, pages 7-10, May 13-15, 1998 Pittsburgh, Pennsylvania - USA.
- [PKS98] V. Palankovski, M. Knaipp, S. Selberherr. *"Influence of the material composition and doping profiles on HBTS device performance"* In *International Association of Science and Technology for Development*, 1998. IASTED 1998, pages 7-10, May 13-15, 1998 Pittsburgh, Pennsylvania - USA.
- [Ada09] Sadao Adachi. *"Properties of Semiconductor Alloys: Group-IV, III–V and II–VI Semiconductors"* Gunma University, Gunma, Japan. John Wiley & Sons Ltd

## Simulación

- [WHB83] W.L. Engl, H. K. Dirks and B. Meningerzhagen. *"Device modeling"*. Proc IEEE, Vol. 71, no. 1, pp. 10-33, January 1983.
- [LBB03] G. Letay, M. Bresselge, A.W. Bett. *"Calculating the generation function of III-V solar cells"*. WCPEC-3, Osaka, Japan, May 11-18, 2003.
- [PisII] Mark R. Pinto, Conor S. Rafferty, Robert W. Dutton. *"Pisces II: Poisson and continuity equation solver"*. U.S. Army research office, September 1984.
- [GMR07] Gonzalo Murillo Rodríguez. *"Modelado y simulación de la respuesta óptica de células solares multiunión para sistemas de concentración"*. Proyecto Final de Carrera, Universidad de Granada, 2007.
- [NPB17] Nerea Polo Bueno. *"Simulación de células solares multiunión en Python/Fortran"*. Proyecto Final de Carrera, Universidad de Granada, 2017
- [DTP17] D. Alonso-Alvarez, T. Wilson, P. Pearce, N. Ekins-Daukes. *"Solcore: A multi-scale python-based library for the modelling of solar cells and semiconductor materials"*. Department of Physics, Imperial College London, London, UK, Computer Physics Communications September 20, 2017.
- [RJS16] R. W. Andrews, J. S. Stein, C. Hansen. *"Introduction to the open source, PV LIB for python Photovoltaic system modelling package"*. 2016 IEEE, 43rd Photovoltaic Specialists Conference (PVSC) (2014) 0170–0174.

## Métodos numéricos

- [AK15] Antonio Carrillo Ledesma, Karla Ivonne González Rosas, Omar Mendoza Bernal. *"Introducción al Método de Diferencias Finitas y su Implementación Computacional"* Recurso en línea. Facultad de Ciencias, UNAM. Primavera 2018, versión 1.0 $\beta$ .
- [SG69] D. Scharfetter and H.K. Gummel. *"Large signal analysis of a silicon read diode oscillator"*. IEEE Trans. Electron Devices, ED-20:64-77, 1969.
- [NRC] William H. Press, Saul A. Teukolsky, William T. Vetterling. *"Numerical recipes in C: The art of scientific computing"*. 2nd Edition, Cambridge university press.

## Computación

- [GIC] *"The GNU C 99 Library"*. Recurso en línea. [https://www.gnu.org/software/libc/manual/html\\_node/index.html#SEC\\_Contents](https://www.gnu.org/software/libc/manual/html_node/index.html#SEC_Contents)
- [CPy3] *"The Python C API manual"*. Recurso en línea. <https://docs.python.org/3/c-api/intro.html>
- [HPL07] Hans Petter Langtangen, Timothy J. Barth, Michael Griebel, David E. Keyes, Risto M. Nieminen, Dirk Roose, Tamar Schlick. *"Python Scripting for Computational Science"*. Texts in computational science and engineering. 3rd edition, Springer, 2008.
- [PyGUI] *"GUI programming frameworks"* <https://wiki.python.org/moin/GuiProgramming> Recurso en línea.

## Otros artículos de interés

- [FRS95] Finley R. Shapiro. *"The Numerical Solution of Poisson's Equation in a pn Diode Using a Spreadsheet"*. IEEE TRANSACTIONS ON EDUCATION, VOL. 38, NO. 4, NOVEMBER 1995. Recurso en línea (<https://ieeexplore.ieee.org/document/473161/>).