#### **Overview**



•What is gpvdm/theoretical overview?

Installing gpvdm

•Running simple simulations •Your first gpvdm simulation •Changing electrical parameters

•Optical simulations and the materials database

•Perovskite solar cells and time domain simulations

•OFET simulations and finite difference meshing.

•Editing the device structure using the layer editor

Meshing and dumping

•OLEDs

# Your first gpvdm simulation



#### • Click on New simulation, in the file menu.



#### •Save it somewhere but *not* in the install directory.

## You should get this window.





#### **Click the play button**

### The core solver will be run on CPU 0



*	Ger	neral-purpose Pho	otovoltaic Device Model (	https://www.gpvdm.com)		↑ _ □ >
File Home S	Simulations Configure	Databases Ir	Information			About
Undo Run simulation	Stop Paramet simulation scan	er Fit F data F	Plot Examine results File in time domain	Light intensity (Suns):		(S) Help
evice structur	rminal Output					
CPU 0 CPU 1 CPU 2 CPU 3 Cluster Jobs list	VoC = 6.0223/8e- Voltage=0.620006 Voltage=0.640006 Voltage=0.660006 Voltage=0.700066 Voltage=0.700066 Voltage=0.720066 Voltage=0.740066 Voltage=0.760066 Voltage=0.780066 Stopping because Max possible Jsc Voc= 0.602238 (V Jsc= -111.634936 Pmax= 45.118899 Pmax Voltage= 0. FF= 67.110478 Efficiency= 4.51 photon density= Freeing memory=6 Complex solver f Solved 46440 Fm	01 (0.624972) (0.653038) (0.684462) (0.761928) (0.761928) (0.761928) (0.810684) (0.868162) (0.935992) (1.015829) (1.015829) (1.015829) (1.015829) (0.761928) (0.868162) (0.935992) (1.015829) (0.761928) (0.935992) (1.015829) (0.935992) (1.015829) (0.935992) (0.93592	Current = 2.51698 Current = 6.65244 Current = 1.25100 Current = 2.06479 Current = 3.17210 Current = 4.64669 Current = 6.56851 Current = 9.02125 Current = 1.20897 al 1.109301e+00>1. 559	0e-01 mA (4.249316e+01 / 6e-01 mA (1.114346e+02 / 0e+00 mA (2.090772e+02 / 3e+00 mA (3.447257e+02 / 7e+00 mA (5.292941e+02 / 6e+00 mA (7.750745e+02 / 8e+00 mA (1.095393e+03 / 4e+00 mA (1.504196e+03 / 1e+01 mA (2.015619e+03 / 100000e+00	<pre>A/m^2) 1.025101e-13 //m^2) 7.776147e-14 //m^2) 5.572298e-14 //m^2) 3.955162e-14 //m^2) 1.683624e-14 //m^2) 1.091178e-14 //m^2) 1.091178e-14 //m^2) 7.069920e-15 //m^2) 7.079860e-15</pre>	
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	Bytes read 17329 Files read 90 Files written 61 I have shut dowr	3 34 the server				
/home/rod/Desktop/new_s	imulation					

•Blue is CPU usage, red is disk usage, if you simulation is running slowly, writing to the HDD is *always* the bottleneck, SSDs highly recommended.

## Examining the results.





#### The snapshots window, this is used to show changes in the device as a function of voltage and time.



# Using the snapshots window





•Click play and the simulation will iterate through each voltage step. If you were doing a time domain simulation it would do the same.