## **User Manual**

1.1 Locate unzipped file and double click Installer application to install required runtime engine.

Favorites	Documents library			Arrange by	r: Folder ▼
Desktop	Name	Date modified	Туре	Size	
ConeDrive		10/24/2016 4-16 DM	File folder		
😌 Dropbox	Jin license	10/24/2010 4:10 PW	File folder		
	supportfiles	10/24/2016 4:10 PM	File folder		
libraries	Material Data	10/24/2016 4:17 PM	File folder		
Documents	Saved Data	1/2/2017 11:01 AM	File folder		
J Music	Volume	1/11/2017 11:39 AM	File folder		
Pictures	Installer	6/2/2016 1:38 PM	Application	1,430 KB	
Videos	Application	10/24/2016 4:15 PM	Configuration sett	1 KB	
	Optical Properties of Semiconductors	10/24/2016 4:15 PM	Application	578 KB	
Homegroup	🔊 setup	10/24/2016 4:17 PM	Configuration sett	15 KB	
Computer			-		
Computer A OS (C)					
Network					
Thursday					

1.2 Choose location for Labview runtime engine software, and then click next.

led Pro	oject 1					l	
Des Se	tination Direct elect the installa	c <b>tory</b> tion directories.					
All so differ	oftware will be ir rent location, cli	nstalled in the follo ck the Browse bu	owing locatio utton and sele	ns. To install soft ect another direct	ware into a tory.		
Dir	ectory for Untitle	ed Project 1				1 (	
Dir C:`	ectory for Untitle	ed Project 1 ix86)\Untitled Proj	ject 1\			Brov	wse
Dir C.'	ectory for Untitle \Program Files ( ectory for Natio	ed Project 1 ix86)\Untitled Proj nal Instruments pr	ject 1\ roducts			Brow	wse

1.3 Just click next and wait for the installation of the components to be over. This may take a few minutes, and then click finish.

Untitled Project 1		x
Start Installation Review the following summary before continuing.		
Upgrading • National Instruments system components		
Adding or Changing • Untitled Project 1 Files		
Click the Next button to begin installation. Click the Back button to change the installation settings	č.	
Save File << Back Next >>	Cance	el

2. Double click Optical Properties of Semiconductors to launch program.

Favorites	Documents library			Arrange k	Eolder
Recent PI	Optical Properties of Semiconductors			rindinge b	y. rolaci
Desktop	Name	Date modified	Туре	Size	
OneDrive	) bin	10/24/2016 4:16 PM	File folder		
Dropbox	license	10/24/2016 4:16 PM	File folder		
	supportfiles	10/24/2016 4:17 PM	File folder		
Libraries	Material Data	10/24/2016 4:17 PM	File folder		
Documer	Volume	1/11/2017 11:42 AM	File folder		
My Doc E	Saved Data	1/11/2017 2:22 PM	File folder		
Public I	Installer	6/2/2016 1:38 PM	Application	1,430 KB	
Distures	Application	10/24/2016 4:15 PM	Configuration sett	1 KB	
Videos	Optical Properties of Semiconductors	10/24/2016 4:15 PM	Application	578 KB	
VIGEOS	Setup	10/24/2016 4:17 PM	Configuration sett	15 KB	
Homegrou					
lonnegrou					
Computer					
OS (C:)					
Microsoft					
1					



3.1 Once program has launched, press run button as indicated to initiate program.



3.2 First, you should choose the material using the drop down menu.

## 3.3 After selecting the material, you can see the suggested ranges for wavelength and temperature along with references at the bottom.

dit Operate Tools Win	dow Help			
			· · · · · · · · · · · · · · · · · · ·	
<u>o</u>	ptical Pro	operties o	Semiconductor	<u>ts</u>
out Parameters			Output	
		A	Energy band gap (Eg)	eV
laterial InAs	⊻ X =			
linimum Vavelength 🗍 0	μm .37	Suggestion	Effective Electron mass (m*)	x m_e
laximum		_		
Vavelength 🚽 0	μm 10	Suggestion	Conductivity (K)	W/m-K
emperature	к 0 - 300	Suggestion		
•	Δ		File Name	
	U	Kun		Save Data
Complex	Refractive Index		Dielectric Fu	nction
4.6-		-3.75	20-	-
4.2-		-3.3	18-	-
4-		-3	16-	-
3.8-		-2.75	14-	_
3.6-		-2.5	12-	
3.4-		-2.25	8-	
B 3-		-2 2	N 6-	-
2.8-		-1.75 al	)	-
2.6-		-1.5	2-	-
2.4-		-1.25	0-	
2.2-		-1	-2-	
1.8-		-0.75	-4-	
1.6-		-0.5	-6-	
1,4-		-0.25	-8-	
1.2-	1	-0	-10-1	
V	/avelength (µm)	-	Wavelength	- n (μm)
nces				
//www.ioffe.ru/SVA/NSM/S	emicond/InAs/bandstr.htm			
//www.eecs.umich.edu/cou	rses/eecs320/f00/bk7ch03.p	df		
vari. Compound Semicondu	ctor Device Physics.			
emic Press, 1992.				

\* This suggested range is due to the availability of the data in our database.



3.4 Input values of interest within applicable suggested range and press "Run."

3.5 The left graph plots the real refractive index (red) and the extinction coefficient (green) vs. wavelength. The right graphs plots the real (red) and imaginary (green) part of the dielectric function vs. wavelength. The energy band gap (Eg), effective electron mass (m\*), and thermal conductivity (K) in the output parameters box are material specific and calculated as a function of temperature.



4.1 To save output parameters and plotted data, input file name and press "Save Data." File will be saved to "Saved Data" folder with chosen file name in .txt format.



	open one men - E-man bum	Hen folder		0	
orites ecent PI	Documents library Optical Properties of Semiconductors			Arrange by	Folder
esktop	Name	Date modified	Туре	Size	
neDrive	bin bin	10/24/2016 4:16 PM	File folder		
ropbox	license	10/24/2016 4:16 PM	File folder		
12.	le supportfiles	10/24/2016 4:17 PM	File folder		
raries	Material Data	10/24/2016 4:17 PM	File folder		
Mu Day	🗼 Volume	1/11/2017 11:42 AM	File folder		
	🗼 Saved Data	1/11/2017 2:22 PM	File folder		
Ausic	🚚 Installer	6/2/2016 1:38 PM	Application	1,430 KB	
icturer	Application	10/24/2016 4:15 PM	Configuration sett	1 KB	
ideos	Optical Properties of Semiconductors	10/24/2016 4:15 PM	Application	578 KB	
lacos	Setup	10/24/2016 4:17 PM	Configuration sett	15 KB	
megrou					
mputer					
IS (C:)					
licrosoft					

4.2 Double click Saved Data folder to access saved file.

4.3 Saved file

Favorites	Documents library Saved Data			Arrange b	y: Folder 🔻
Desktop	Name	Date modified	Туре	Size	
ConeDrive	[]] InAs 280K	1/11/2017 2:21 PM	Text Document	1 KB	
Network					

\*Shortcut of "Optical Properties of Semiconductors" can be created and will work properly if original file remains in the same folder with the "Material Data" and "Saved Data" folders.