

Values for dielectric constants

Here are some values for dielectric constants:

- First, some of the more interesting materials with [electronic polarization](#) at work, at least to some noticeable extent.

Illustration

Static ϵ_r for some semiconductors.			
Covalent bonding		Covalent and ionic bonding	
Electronic polarization is the main mechanism		Mix of electronic and ionic polarization	
C	5.7	ZnO	4.6
Si	12.0	ZnS	5.1
Ge	16.0	ZnSe	5.8
SiC	6.7	CdS	5.2
GaP	8.4	CdSe	7.0
GaAs	10.9	BeO	3.0
InP	9.6	MgO	3.0
The numbers are from "Solid State Physics" of Ashcroft / Mermin (an advanced text book).			

- Next, some numbers for [ionic crystals](#). Besides the static $\epsilon_r(\omega = 0)$, the value $\epsilon_r(\omega = \infty)$ for very high frequencies is also given. This means that after ionic polarization "dies out", there is still some electronic polarization left.

Static and high-frequency ϵ_r for some ionic crystals		
Crystal	$\epsilon_r(\omega = 0)$	$\epsilon_r(\omega = \infty)$
LiF	9.01	1.96
NaF	5.05	1.74
KF	5.46	1.85
LiCl	11.95	2.78
NaCl	5.90	2.34
KCl	4.84	2.19
LiBr	13.25	3.17
NaBr	6.28	2.59
LiI	16.85	3.80
NaI	7.28	2.93
The numbers are from "Solid State Physics" of Ashcroft / Mermin (an advanced text book).		