

## Publications

### 2009

1. Comparison of electronic structure of solar and as grown silicon samples  
S. Jainulabdeen, K.S.Syed Ali, **R.Saravanan**, - 2009 ???
2. X-ray analysis of charge density distribution in GaP at 296 and 200K using Multipole and MEM models  
S. Israel, K.S. Syed Ali, R.A.J.R. Sheeba and **R. Saravanan**  
**Chinese J. Phys.**— In Press - 2009
3. Effect of Iron doping on the electron density distribution in pure aluminium  
**R. Saravanan**, M. Prema Rani  
**Bentham Open - The Open Crystallography Journal**—In Press - 2009
4. Practical application of maximum entropy method in electron density and bonding studies  
(Topical Review)  
**R. Saravanan**  
**Physica Scripta - IOP** - In Press - 2009
5. Structural analysis of Al, Ni and Cu using MEM, Multipole and Pair Distribution Function  
M. Charles Robert, **R. Saravanan**, K. Saravanakumar, M. Premarani -  
**Zeitschrift für Naturforschung Redaktion** - In Press - 2009
6. Growth of novel diluted magnetic semiconducting material  $Ge_{1-x}Mn_x$  and X-ray characterization by  
Maximum Entropy Method (MEM) and Pair Distribution Function (PDF)  
K.S.SyedAli, **R.Saravanan**, S. Israel  
**J. Crystal Growth** - In Press - 2009
7. Local structure of the thermoelectric material  $Mg_2Si$  using XRD  
**R. Saravanan**, M.Charles Robert  
**J. Alloys and Compounds** - In Press - 2009
8. Local structure of the high temperature thermoelectric material PbTe using Maximum Entropy method  
(MEM) and Pair Distribution function (PDF)  
**R. Saravanan**, M. Charles Robert  
**J. Phys. Chem. Solids**, 70, 159-163, 2009

### 2008

1. X - ray characterization of Ag impurities in  $Na_{1-x}Ag_xCl$   
Nizarul Hazeen, K. S. Syed Ali, M. Prema Rani and R. Saravanan,  
**Defects & Diffusion Forum (DDF) (Trans Tech Pub.)** (Book title: *Defects and Diffusion in Metals—An Annual Retrospective X*), 278, 33-44, 2008
2. X-ray Determination of Charge Transfer in Solar Grade GaAs  
R. Saravanan, S. Jainulabdeen, N. Srinivasan, Y. B. Kannan  
**J. Phys. Chem. Solids** - 69, 83-86, (2008)
3. Electron density distribution in Si and Ge using multipole, maximum entropy method and pair distribution  
function analysis,  
R.Saravanan, K S Syed Ali, and S Israel,  
**Pramana** 70, 4, 679- 696 (2008)

### 2007

1. Non-nuclear maxima (NNM), symmetric and asymmetric charge distribution in solar grade Si and n-GaAs,  
using X-ray powder data  
R. Saravanan, A. Majella Mary Ann, S. Jainulabdeen  
**Physica B** – 400, 16-21 (2007)
2. Maximum entropy method and multipole analysis of the bonding in sodium and vanadium metals  
R. Saravanan and M. Prema Rani  
**J. Phys.: Condens. Matter** 19 (2007) 266221 (8pp)
3. Bonding in CoAl and NiAl metal alloys using multipole and MEM techniques  
R. Saravanan and M. Prema Rani  
**J. Alloys and Compounds** – 431, 121-129 (2007) (Elsevier)

**2006**

1. Application of Maximum Entropy Method for the Study of Electron Density Distribution in SrS, PuS, CaS, MnS and HgS using Powder X-ray data.  
R. Saravanan  
**Pramana** – Vol. 66, No. 6, June 2006, pp. 1057-1065 (Indian Academy of Sciences)
2. Electron density distribution and bonding in ZnSe and PbSe using maximum entropy method (MEM)  
K. S. Syed Ali, R. Saravanan, S. Israel, R. K. Rajaram  
**Bulletin of Materials Science** – 29, No.2, 107-114, Apr. 2006 (Indian Academy of Sciences)
3. Probabilistic electron density distribution in CdTe at RT and 200K  
R. Saravanan, S. Israel, Y. Ono, K. Ohno, M. Isshiki, T. Kajitani, and R. K. Rajaram  
**Crystal Research and Technology**, 41, No. 3, 259–267 (2006) (Wiley Interscience) /DOI 10.1002/crat.2005105713, 41, (2006)

**2005**

1. Optical, thermal and phase transition studies in  $\text{Sn}_{1-x}\text{Ge}_x\text{Te}$   
M. Sivabharathy, N. Sankar, R. Saravanan and K. Ramachandran  
**Bull. Mater. Sci.**, Vol. 28, No. 7, December 2005, pp. 675–679. (Indian Academy of Sciences)
2. Bonding in ZnTe at RT, 200 and 100 K Revealed by Entropy Maximized Electron Density Distribution.  
R. Saravanan, S. Israel and R. K. Rajaram  
**Physica B**363/1-4,166-177, 2005 (Elsevier)

**2004**

1. Bonding in Fluorite Compound  $\text{CaF}_2$  Using MEM.  
R. Saravanan and S. Israel.  
**Physica B**352/1-4, 220-226, (2004). (Elsevier)
2. Electronic Structure of InP at RT, 200K and 100K.  
S. Israel, R. Saravanan, and R.K. Rajaram.  
**Physica B**349, 390-400, (2004). (Elsevier)
3. Determination of Experimental X-ray Anomalous Dispersion Correction Term  $f''$  of Tellurium in CdTe at 200 K and 300 K.  
R. Saravanan and B. Revathy.  
**Salsearch**, pp.36-52, (2004) (Private Communication)

**2003**

1. An investigation on the bonding in MgO, CaO, SrO and BaO from the MEM electron density distributions  
S. Israel, R. Saravanan, N. Srinivasan and S.K. Mohanlal  
**Journal of Physics and Chemistry of Solids**, 64, 879-886, (2003). (Elsevier)
2. Charge transfer in CdTe at 200 K and 300 K.  
K. Balamurugan, R.Saravanan, K.Asharamani, P. Manimaran, S. Mariyappan, N.Srinivasan, Y. Ono, M. Isshiki, T. Kajitani ,  
**Journal of Crystal Growth**, 250, 382-392, (2003). (Elsevier)
3. Electron density distribution in GaAs using MEM,  
Ramachandran Saravanan, Yasuhiro Ono, Minoru Isshiki, Kahoru Ohno, Tsuyoshi Kajitani,  
**Journal of Physics and Chemistry of Solids**, 64 (2003) 51–58
4. High resolution electron density mapping for LiF and NaF by maximum entropy method (MEM)  
S. Israel, R. Saravanan, N. Srinivasan, R.K. Rajaram,  
**Journal of Physics and Chemistry of Solids** 64 (2003) 43–49

**2002**

1. Gel Growth and X-ray Characterization of Ferro Electric Single Crystals of  $\text{SrHPO}_4$  and  $\text{PbHPO}_4$ .  
K.S. Syed Ali, N. Ajeetha, R.Saravanan  
**Bulletin of Pure and Applied Sciences** – D: Physics. Vol. 21 D Issue No. 2, 151-157, (2002).
2. Electronic Charge Distribution in the Intermetallic Compound MnHg  
R. Saravanan, S. Israel, S. Swaminathan, R. Kalidoss and M. Muruganantham  
**Crystal Research and Technology**, 37, Issue 12, 1310-1317, (2002) (Wiley Interscience)

3. Experimental  $f''$  of As at 170, 200, 250 and 300 K from the Bijvoet pairs of GaAs  
G. Raja Sudha, K. Vimala Devi, D. Arthi, S. Prasanna Subramanian, N. Srinivasan and R. Saravanan  
**Bulletin of Materials Sciences**, 25, No.4, 325-327, (2002). (Indian Academy of Sciences)
4. Raman Study on H<sup>+</sup> - implantation effects in highly doped n-GaAs  
P. Murugan, R. Kesavamoorthy, S. Amirthapandiana, R. Saravanan, K. Ramachandran, N. Krishnamurthy  
**Physica B** 315, 56, (2002). (Elsevier)

**2001**

1. High resolution electron density distribution determination for GaAs and CdTe  
T. Kajitani, R. Saravanan, Y. Ono, K. Ohno, and M. Isshiki  
**J. Crystal Growth**. Vol. 229, 130-136, (2001). (Elsevier)

**2000**

1. X-ray structure of BaTiO<sub>3</sub>-Missed Opportunities  
K. S. Chandrasekaran, S. K. Mohanlal, R. Saravanan, S. Israel  
**Acta Crystallographica**, B56, 918-919, (2000) (IUCr)
2. Tetrahedral distortion of Fluorine in CaF<sub>2</sub> R. Saravanan, and S. K. Mohanlal  
**Bulletin of Pure and Applied Sciences**, Vol. 19 D, (No. 1), 27-32, (2000).
3. Tests for precision of measured X-ray intensities R. Saravanan, and S. K. Mohanlal  
**Bulletin of Pure and Applied Sciences**, Vol. 19 D, (No. 1), 41-52, (2000).

**1999**

1. X-ray Debye-Waller factors and electron density distribution for BP and BaS  
B. Chitra, S. K. Mohanlal, and R. Saravanan **Bulletin of Pure and Applied Sciences**, Vol. 19 D, (No. 1), 33-39, (2000).
2. Thermal vibrations of core and valence electrons in LiF  
R. Saravanan, and S. K. Mohanlal **Bulletin of Pure and Applied Sciences**, Vol.18 D, (No. 2), 117-121, (1999).

**1998**

1. Bonding in GaAs, CdTe and ZnTe  
R. Saravanan, Y. Ono and T. Kajitani **Society of App. Phy.** (Japan), 11pA1,(1998)
2. Modulated structure of CDW material 1T-TaS<sub>2</sub>  
T. Takashima, R. Saravanan, and T. Kajitani **Society of App. Phy.** (Japan), 11pB9, (1998)
3. Visualization of covalent bonding electrons in GaAs and CdTe  
Y. Ono, R. Saravanan, M. Ishiki, and T. Kajitani **Phy. Soc. of Japan**.(Japan), 28AYK10,(1998)

**1997**

**1996**

1. Charge transfer in the bonding of GaAs  
K.S. Chandrasekaran, S. K. Mohanlal, S.K.,and R. Saravanan  
**Phys. Status Solidi B** (Germany), vol.196, no.1, 3-10, 1 July (1996), (Wiley Interscience)
2. Charge transfer in GaP and InP  
R. Saravanan, S. Israel, N. Srinivasan, and S. K. Mohanlal  
**Phys. Status Solidi B** (Germany), vol.194, no.2, 435-41, 1 APRIL, (1996), (Wiley Interscience)
3. Charge transfer in ZnSe  
N. Srinivasan, R. Saravanan, S. Israel, and S. K. Mohanlal  
**Cryst. Res. Technol.** (Germany), vol.31, no.1, K6-8, (1996), (Wiley Interscience)

**1995**

1. Temperature dependence of core and valence thermal vibrations in germanium  
J. Jeyakanthan, R. Saravanan, and S. K. Mohanlal  
**Phys. Status Solidi B** (Germany), vol.190, no.2, 415-19, 1 Aug. (1995) ), (Wiley Interscience)
2. Debye-Waller factors in Na<sub>2</sub>C<sub>60</sub>  
N. Srinivasan, R. Saravanan, S. Israel, and S. K. Mohanlal  
**Cryst. Res. Technol.** (Germany), vol.30, no.3, K37-9, (1995) ), (Wiley Interscience)
3.  $f''$  of silicon from linear absorption measurements  
N. Srinivasan, S. Israel, R. Saravanan, and S. K. Mohanlal

- Cryst. Res. Technol.** (Germany), vol.30, no.1, K1-3, (1995) ), (Wiley Interscience)
4. On the anharmonic vibrations in crystalline silicon  
R. Saravanan, S.K. Mohanlal, and M. Netaji  
**Cryst. Res. Technol.** (Germany), vol.30, no.1, 115-20, (1995) ), (Wiley Interscience)
  5. X-ray investigations on the defect structure of KCl with Cd<sup>++</sup> Impurities.  
R. Saravanan, and S. K. Mohanlal **Cryst. Res. Technol.** (Germany), vol.30, no.1, 55-62, (1995) ), (Wiley Interscience)
- 1994**
1. Core and valence thermal vibrations in diamond, silicon, and germanium  
R. Saravanan, P. Balamurugan, and S. K. Mohanlal  
**Phys. Status Solidi B** (Germany), vol.184, no.2, 341-6, 1 Aug. (1994)
  2. Anharmonic effects in germanium  
R. Saravanan, S. K. Mohanlal, and M. Nethaji  
**Phys. Status Solidi B** (Germany), vol.183, no.2, 359-64, 1 June (1994) ), (Wiley Interscience)
  3. Anomalous dispersion correction terms of As and Sb  
R. Saravanan, and S. K. Mohanlal  
**Cryst. Res. Technol.** (Germany), vol.29, no.4, 555-9, (1994) ), (Wiley Interscience)
- 1993**
1. Charge transfer in the bonding of GaAs and InSb.  
K. S. Chandrasekaran, S. K. Mohanlal, and R. Saravanan  
**Proc. Sol.State.Phy.Sym.** (DAE), (India), vol.36c, 77, (1993)
- 1992**
1. An X-ray search for anharmonicity in indium phosphide  
R. Saravanan, S.K. Mohanlal, and K.S. Chandrasekaran  
**Z. Kristallogr.** (Germany), vol.200, no.1-2, 7-13, (1992)
  2. Experimental determination of  $f''$  for Ga and In from Bijvoet ratio  
R. Saravanan, S. K. Mohanlal, and K. S. Chandrasekaran  
**Cryst. Res. Technol.** (Germany), vol.27, no.2, 219-24, (1992) (Wiley Interscience)
  3. Growth of LiNaSO<sub>4</sub> single crystals from a solution of stoichiometric pH value  
S. R. Sahaya Prabakaran, P. Muthu Subramanian, R. Saravanan, and S. K. Mohanlal  
**Bulletin of Materials Science**, vol.15, no.4, 355-362, (1992) (Indian Academy of Sciences)
  4. Experimental methods of evaluation of crystalline perfection in solar silicon ribbons.  
R. Saravanan, and S.K. Mohanlal  
**Physics Education (India)**, vol.9, no.1, 20-28, (1992) (Wiley Interscience)
  5. Polarity, Anharmonicity and Bond Charge Parameters in Compound III-V Semiconductors by X-ray Diffraction  
R. Saravanan, S.K. Mohanlal and K. S. Chandrasekaran  
**Proc. 35th Sol. State. Phy. Sym.** (DAE), Vol 35, 115, (1992)
  6. Anharmonic temperature factors, anomalous-dispersion effects and bonding charges in gallium arsenide  
R. Saravanan, S. K. Mohanlal, and K. S. Chandrasekaran  
**Acta Crystallogr. A, Found. Crystallogr.** vol.A48, PT.1, 4-9,1 Jan. (1992) (IUCr)
- 1991**
1. Anomalous dispersion effects, anharmonic thermal vibrations and bonding charges in indium antimonide  
R. Saravanan, S. K. Mohanlal, and K. S. Chandrasekaran  
**J. Phys. Chem. Solids** (UK), vol.52, no.7, 879-86, (1991) (Elsevier)
  2. Investigations of Bijvoet differences and anharmonicity in gallium phosphide  
R. Saravanan, S. K. Mohanlal, and K. S. Chandrasekaran  
**Phys. Status Solidi B** (Germany), vol.165, no.1, 67-74, May (1991) (Wiley Interscience) .
- 1990**
1. IR, microhardness and etching studies of gel grown rubidium hydrogen tartrate crystals  
S. Asath Bahadur, R. Saravanan, R. K. Rajaram, V. Ramakrishnan  
**Cryst. Res. Technol.** (Germany), vol.25(11), K273-277, (1990) (Wiley Interscience)