

# ***CURRICULAM VITAE***

## **CONTACT INFORMATION**

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## **PERSONAL DATA**

*Date of Birth* : May 05, 1974  
*Nationality* : Indian  
*Marital Status* : Married  
*Sex* : Male

## **EDUCATIONAL QUALIFICATIONS**

- ❖ B.Sc. (Mathematics, Physics, Chemistry) – First Division – 1994
- ❖ M.Sc. ( Mineral Chemistry ) – First Division – 1997
- ❖ Ph.D. ( Environmental Analytical Chemistry) – 2002

## **HIGHLITES**

- Experience in the synthesis of nanoparticles for environmental analysis.
- Extensive experience in the design of solid adsorbents for the removal and recovery of toxic and precious metal ions.
- Preparation of chemical sensors for optical detection of VOCs.
- Extensive experience in the identification of foulants on membrane biofouling.
- Considerable experience in handling sophisticated spectroscopy techniques.
- Considerable experience in the development of analytical methods for the detection of toxic ions.
- Demonstrated leadership skills by mentoring undergraduate and graduate students.

## **RESEARCH EXPERIENCE**

- ❖ 1997 – 2002: Developed the novel preconcentration methods for the determination of trace metal ions and also investigated the adsorption experiments for the removal of heavy metals using clays and zeolites. (S.V. University, Tirupati, India)
- ❖ Sep, 2002 – July, 2003: Development of ATR - FTIR chemical sensing methods for

- the detection of organic pollutants. (National Chung-Hsing University, Taichung, Taiwan).
- ❖ Sep 2003 – May 2005: Membrane biofouling and cleaning, Detection of extracellular polymeric substances in fouled membrane by analytical methods, Filtration characteristics of activated sludge and extraction of SMP and ECP from activated sludge (National Taiwan University, Taipei, Taiwan).
  - ❖ Sep 2004 – Oct 2004: Extraction of DNA from anaerobic digestion sludge. Ultra sonication effects and some chemical parameters of sludge from anaerobic reactors (Nanyang Technological University, Singapore).
  - ❖ Sep 2005 – Aug 2007: Removal of inorganic and organic arsenic from aqueous solutions by modified clays and nanoparticles. Synthesis of modified silica and alumina nanoparticles as a solid phase extractants for heavy metal determination in environmental samples and Membrane Biofouling by aerobic and anaerobic digested activated sludge. (Kanazawa University, Japan).
  - ❖ Nov 2007 – To date: Fate and transport of human enteric viruses and bacteriophages in soils. (University of Delaware, USA).

## **RESEARCH INTERESTS**

1. Fate and transport of Human Enteric Viruses and Bacteriophages in soils.
2. Membrane Biofouling
3. Chemical sensors and Analytical methods development
4. Adsorption of water pollutants
5. Nano-particles for environmental applications.

## **ACADEMIC AWARDS / HONOURS**

- *Senior Research Fellow*: 2001 – 2002, Awarded by Council of Scientific and Industrial Research, New Delhi, **India**.
- *Post Doctoral Fellow*: Sep, 2002 – July, 2005, Awarded by National Science Council of R.O.C, **Taiwan**.
- *Visiting Fellow*: Sep 2004 – Oct 2004, Research exchange program, Nanyang Technological University, **Singapore**.
- *JSPS Fellow*: Sep 2005 – Aug 2007, Awarded by Japan Society for the Promotion of Science, **Japan**.
- *Post Doctoral Fellow*: Nov 2007 - , Working in USDA project, **USA**.

## PROFESSIONAL SKILLS

### 1. Academic skills

Acquired skills in handling the instruments like Uv-Vis spectrophotometer, Fluorescence spectrophotometer, Atomic absorption spectrophotometer, Inductively coupled plasma atomic emission spectrophotometer, Scanning electron microscope, Zeta analyzer, Autoclave, Fourier transform infrared spectrometer and Emission and excitation matrix. Handled the M.Sc., (Analytical Chemistry & Environmental Sciences) practical and theory classes and thus obtained teaching experience.

### 2. Computer skills

Software like MS-Office, Origin, sigma plot and Chem draw were known. A certificate is obtained from the language of Oracle 7.0 and windows developer 2000.

## PEER REVIEWER

Journal of Colloid and Interface Science (ISSN: 0021-9797),  
Separation and Purification Technology (ISSN: 1383-5866),  
Journal of Hazardous Materials (ISSN: 0304-3894),  
Chemical Engineering Journal (ISSN: 1385-8947),  
Langmuir (ISSN: 1520 – 5827).

## LIST OF PUBLICATIONS

1. **Ramesh, A.**, Hasegawa, H., Maki, T. and Ueda, K (2008): Adsorption of gold(III), platinum(IV) and palladium(II) onto glycine modified crosslinked chitosan resin. *Bioresource Technology*, 99, 3801-3809.
2. **Ramesh, A.**, Hasegawa, H., Maki, T. and Ueda, K (2007): Microcolumn pre-concentration of trace metals in environmental samples using modified nanometer alumina and determination by ICP-AES. *Journal of Ecotechnology Research*, 13, 85-90.
3. **Ramesh, A.**, Hasegawa, H., Maki, T. and Ueda, K. (2007): Adsorption of inorganic and organic arsenic from aqueous solutions by polymeric Al/Fe modified montmorillonite. *Separation and Purification Technology*, 56, 90-100.

4. **Ramesh, A.**, Aparna Devi, B., Hasegawa, H., Maki, T. and Ueda, K. (2007): Nanometer sized alumina coated with chromotropic acid as solid phase metal extractant from environmental samples and determination by inductively coupled plasma atomic emission spectrometry. *Microchemical Journal* 86, 124-130.
5. Fujiwara, K., **Ramesh, A.**, Maki, T., Hasegawa, H. and Ueda, K. (2007): Adsorption of platinum(IV), palladium(II) and gold(III) from aqueous solutions onto L-lysine modified crosslinked chitosan. *Journal of Hazardous Materials* 146, 39-50
6. **Ramesh, A.**, Lee, D.J. and Lai, J.Y. (2007): Membrane biofouling by extracellular polymeric substances or soluble microbial products from membrane bioreactor sludge. *Applied Microbiology and Biotechnology* 74, 699-707.
7. **Ramesh, A.**, Lee, D.J. and Hong, S.G. (2006): Soluble microbial products (SMP) and soluble extracellular polymeric substances (EPS) from wastewater sludge. *Applied Microbiology and Biotechnology* 73, 219-225.
8. **Ramesh, A.**, Lee, D.J., Wang, M.L., Hsu, J.P., Juang, R.S., Hwang, K.J., Liu, J.C. and Tseng, S.J. (2006): Biofouling in membrane bioreactor. *Separation Science and Technology* 41, 1345-1370.
9. Rao, M.M., **Ramesh, A.**, Rao, G.P.C. and Seshaiiah, K. (2006): Removal of Copper and Cadmium from aqueous solutions by activated carbon derived from *Ceiba Pentandra hulls*. *Journal of Hazardous Materials* B 129, 123-129.
10. Rao, G.P.C., Rao, M.M., Veni, S.S., Seshaiiah, K., **Ramesh, A.** and Murthy, K.S.N. (2006): Determination of bismuth in natural water samples by ICP – AES after preconcentration on dithiocarbamates coated Amberlite XAD-7. *International Journal of Environmental Analytical Chemistry* 86, 443-452.
11. Rao, G.P.C., Veni, S.S., Seshaiiah, K., **Ramesh, A.**, Chowdary N.V. and Murthy, K.S.N. (2006): Removal of Cadmium and Zinc from aqueous solutions by Zeolite 4A, Zeolite 13X and Bentonite. *Journal of Environmental Management* 81, 265-272.
12. **Ramesh, A.**, Lee D.J. and Wong, J.W.C. (2005): Adsorption equilibrium of heavy metals and dyes from wastewater with low-cost adsorbents: A Review. *J. Chinese Institute of Chemical Engineers* 36, 3-22.
13. **Ramesh, A.**, Lee D.J. and Wong, J.W.C. (2005): Thermodynamic parameters for adsorption equilibrium of heavy metals and dyes from wastewater with low-cost

adsorbents, Journal of colloids and interface science 291, 588-592.

14. Yang, J., and **Ramesh, A.** (2005): Membrane introduced infrared spectroscopic chemical sensing method for the detection of volatile organic compounds in aqueous solutions. Analyst 130, 397 – 403.
15. **Ramesh, A.**, Rama Mohan, K., Seshaiyah, K. and Choudary, N.V. (2002): Removal of beryllium from aqueous solutions by zeolite 4A and bentonite. Separation Science and Technology 37, 1123-1134.
16. **Ramesh, A.**, Rama Mohan, K. and Seshaiyah, K. (2002): Preconcentration of trace metals in Amberlite XAD-4 resin coated with dithiocarbamates and determination by inductively coupled plasma – atomic emission spectrometry in saline matrices. Talanta 57, 243-252.
17. **Ramesh, A.**, Rama Mohan, K., Seshaiyah, K. and Kumar, N.D.J (2001): Determination of trace metals by Inductively coupled plasma - atomic emission spectrometry after preconcentration on a support impregnated with piperidine dithiocarbamate. Analytical letters 34, 219- 229.
18. **Ramesh, A.**, Rama Mohan, K., Seshaiyah, K. and Rajasekhar, J. (2001): Preconcentration and determination of trace elements in natural waters by inductively coupled plasma atomic emission spectrometry. Indian Journal of chemistry 40A, 430 – 432.
19. Rama Mohan, K., **Ramesh, A.** and Seshaiyah, K. (2001): Studies on adsorption of selected organophosphorus pesticides by clays. Indian Journal of Chemical Technology 8, 278 – 280.
20. Rama Mohan, K., **Ramesh, A.** and Seshaiyah, K. (2001): Extractive Fluorimetric determination of dimethoate residues in water samples. Indian Journal of Chemistry 39A, 13331-1333.
21. Rama Mohan, K., **Ramesh, A.** and Seshaiyah, K. (2000): Extractive – Fluorimetric determination of malathion residues in water samples. Analyst 125, 23- 326.
22. **Ramesh, A.**, Rama Mohan, K. and Seshaiyah, K. (2000): Removal of Tin (II) from aqueous solutions by montmorillonite and kaolinite. Proceedings of the second international seminar on analytical techniques in monitoring the environment at Tirupati, India, December, 2000, 300-304.

23. Rama Mohan, K., Venkateswarlu, B., **Ramesh, A.** Seshaiyah, K. (2000): Extractive spectrophotometric determination of carbaryl in formulations and its residues in water samples. Proceedings of the second international seminar on analytical techniques in monitoring the environment at Tirupati, India, December, 2000, 151-155.

### **List of papers presented in conferences**

1. Seshaiyah, K., Rama Mohan, K., **Ramesh, A.** and P. Mouli. (1998): Control of nutrient contamination of ground water in sewerless urban centers. International symposium on Issues in Environmental Pollution. August 23-27, Denver, Colorado, USA.
2. **Ramesh, A.**, Rama Mohan, K. and K. Seshaiyah. (2000): Poster presentation on “Extractive fluorimetric determination of methoxyethylmercury chloride (Organomercurial Fungicide) in environmental samples”. National Seminar on Environmental Awareness Education & Management for Sustainable Rural Development. August 24-26, S.V. University, Tirupati, India.
3. **Ramesh, A.**, Rama Mohan, K. and K. Seshaiyah. (2002): poster presentation on “Adsorption of Zn from aqueous solutions by zeolite 4A, 13X and bentonite”. National Seminar on Environmental Awareness Education & Management for Sustainable Rural Development- II. August 26-28, S.V. University, Tirupati, India.
4. **Ramesh, A.**, Hasegawa, H., Maki, T. and Ueda, K. (2006): Poster presentation on “Adsorption of inorganic and organic arsenic from aqueous solutions by mixed polymeric Al/Fe modified montmorillonite”. The Japan Society for Analytical Chemistry Conference, September 20-22, Osaka University, Osaka, Japan.
5. **Ramesh, A.**, Hasegawa, H., Maki, T. and Ueda, K. (2006): Oral presentation on “Microcolumn preconcentration of trace metal ions in environmental samples using nanometer sized alumina immobilized with chromotropic acid and determination by inductively coupled plasma atomic emission spectrometry”. 13<sup>th</sup> Asian Symposium on Ecotechnology, December 2-3, Toyama University, Toyama, Japan.
6. **Ramesh, A.**, Hasegawa, H., Maki, T. and Ueda, K. (2007): Oral presentation on “Solid phase extraction of trace metals from environmental and biological samples using sub-micron silica immobilized with morpholine dithiocarbamate and determination by ICP-AES”. 58<sup>th</sup> Pittsburgh conference on analytical chemistry and applied spectroscopy. 25<sup>th</sup> Feb-2<sup>nd</sup> March, Chicago, Illinois, USA.

## **PRESENT RESEARCH**

### FATE AND TRANSPORT OF BACTERIOPHAGES AND HUMAN ENTERIC VIRUSES IN SOIL

Contamination of ground waters and food supplies by pathogenic microorganisms is common in many areas of the United States and public health concerns are increasingly focused on viruses. Approximately 76 million Americans are affected each year by food born illness; over 30 millions are caused by viruses. Protecting the public health requires a sound fundamental understanding of the factors controlling the fate and transport of viruses in agricultural systems. Bacteriophages have been widely used as models for human enteric viruses (HEVs) in environmental fate studies because they have similar morphological features with HEVs and are easier and more cost effective to analyze. However, systematic comparison of the behaviors of bacteriophages and HEVs is rare and there has been report of poor correlation between the removal of model organisms and enteric viruses during activated sludge water treatment process. Hence, I am working on column experiments to investigate the transport and retention of HEVs (Aichi and Hepatitis A) and bacteriophages (MS2 and  $\phi$ X174) through oxide-removed, goethite-coated or aluminum oxide-coated sand. Also, investigating the attachment of viruses onto metal oxide coated sand by various microscopes.