

Resume of Kirpa Ram, Ph.D.

Assistant Professor
Institute of Environment and Sustainable
Development (IESD),
Banaras Hindu University, Varanasi- 221005
Phone No.: +91-7607700787/7939313211
Email: kirpa81@gmail.com, ram.iesd@bhu.ac.in

Expertise: Atmospheric Chemistry
and Aerosols, Black carbon and
Climate change, Air pollution

Education:

Ph.D., Atmospheric Chemistry and Aerosols, 2011
Physical Research Laboratory, Ahmedabad, India

M.Sc., Chemistry (Physical), 2003
University of Allahabad, Allahabad, India

B.Sc., Physics, Chemistry and Maths, 2001
University of Allahabad, Allahabad, India

Teaching/Research Experience:

1. Assistant Professor, **Institute of Environment and Sustainable Development (IESD), Banaras Hindu University**, Varanasi-221005 (March 2014 onward)
2. Scientist, National Environmental Engineering Research Institute (NEERI), Nagpur (~4 months, Dec 2013-March 2014)
3. INSPIRE Faculty: **IIT Bhubaneswar** (~10 months, Feb 2013-Dec 2013)
4. Post-Doctoral Fellow: **University of Tokyo** and **National Institute of Polar Research (NIPR), Japan** (~19 months, July 2011-January 2013)
5. Post-Doctoral Fellow: **Physical Research Laboratory**, Ahmedabad (~1 year, July 2010-June 2011)

Current Areas of Research:

Aerosol Chemistry and Climate, Secondary aerosol formation and air pollution, Optical and microphysical properties of aerosols, Carbonaceous aerosols with emphasis on black carbon, Geochemistry of mineral dust, Stratosphere-Troposphere exchange, Diesel exhaust emission and control for fine particles, PM, BC, VOCs and Platinum group elements (PGEs), Carbon dioxide capture, Indoor air pollution & control.

Fellowship/Honors and awards:

- i. **Full travel funding support** (from DST, India and Alexander van-Humboldt Foundation, Germany) to attend the **Sixth-Indo-German Frontiers of Engineering Symposia (INDOGFOE-2014)** at Potsdam, Germany
- ii. Invited participants in **Sixth-Indo-German Frontiers of Engineering Symposia (INDOGFOE-2014)**, 22 - 25 May 2014, Potsdam, Germany.

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- iii. **INSPIRE faculty award-2012** (from **DST, India**) in Earth and Atmospheric Sciences
- iv. Travel funding support to attend **39th COSPAR Scientific Assembly 2012**, Mysore, India
- v. **July 2011-January 2013: Post-Doctoral Fellow** award from the University of Tokyo and National Institute of Polar Research (NIPR), Japan
- vi. **July 2010-June 2011: Post-Doctoral Fellow** award from **Physical Research Laboratory, Ahmedabad**
- vii. **Full travel funding support** to attend international **IGAC/CACGP- 2010 conference** from IGAC-NOAA-MEL office
- viii. Partial financial Assistance from **DS&T, India** to attend International **European Aerosol Conference-2009 in Karlsruhe, Germany**
- ix. Partial financial Assistance from **CCSTDS- Chennai, India** to attend International **European Aerosol Conference-2009 in Karlsruhe, Germany**
- x. **Oct 2007-June 2010: Senior Research Fellowship** award from **Physical Research Laboratory, Ahmedabad**
- xi. **July 2005-Sept 2007: Junior Research Fellowship** award from **Physical Research Laboratory, Ahmedabad**
- xii. **2004: National Eligibility Test Lectureship (NET-LS)** award from the **Joint CSIR-UGC, New Delhi**

LIST OF PUBLICATIONS:

(i) Papers published in peer reviewed International/National Journals:

1. **K. Ram** and M. M. Sarin (2015), Atmospheric carbonaceous aerosols from Indo-Gangetic Plain and Central Himalaya: Impact of emission sources, *J. Environ. Management*; 148, 153-163, 10.1016/j.jenvman.2014.08.015, **IF¹=3.118**).
2. Srivastava, A. K., **K. Ram**, S. Tiwari and S. Singh (2015), Seasonal variability in BC aerosol optical properties and associated radiative forcing over Manora Peak in the foothills of the Himalaya, *Sci. of Total Environ.*; 502, 287–295, doi/10.1016/j.scitotenv.2014.09.015, **IF=3.258**).
3. C. He, Q. B. Li, K. N. Liou, J. Zhang, L. Qi, Y. Mao, M. Gao, Z. Lu, D. G. Streets, Q. Zhang, M. M. Sarin, and **K. Ram** (2014) A global 3-D CTM evaluation of black carbon in the Tibetan Plateau, *Atmos. Chem. Phys.* 14 (13), 7091-7112, doi:10.5194/acp-14-7091-2014. (Number of Citation=1; **IF=5.510**).
4. Srivastava, A. K., D. S. Bisht, **K. Ram**, S. Tiwari, and M. K. Srivastava (2014), Characterization of carbonaceous aerosols over Delhi in Ganga basin: Seasonal variability and possible sources *Environ. Sci. Poll. Res*, 21 (14), 8610-8619, DOI: 10.1007/s11356-014-2660-y. (Number of Citation=1; **IF=2.618**).
5. **K. Ram**, M. M. Sarin, D. Bhattu and S. N. Tripathi (2014), Primary and secondary aerosols from an urban site (Kanpur) in the Indo-Gangetic Plain: Influence on CCN, CN

¹ Impact factor for 2013 as reported by Journal Citation Reports® Thomson Reuters, 2014

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- concentration and optical properties, *Atmos. Environ.*, 89, 655-663, DOI: 10.1016/j.atmosenv.2014.02.009 (Number of Citation=**02**; **IF=3.11**).
6. X. Liu, Y. Kondo, **K. Ram**, H. Matsui, K. Nakagomi, T. Ikeda, N. Oshima, R.L. Verma, N. Takegawa and M. Koike (2013), Seasonal variation of black carbon observed at a remote mountain site Happo in Japan, *J. Geophys. Res.-Atmospheres*, 118, 1-14, DOI: 10.1002/jgrd.50317 (Number of Citation=**03**; **IF=3.174**).
 7. **K. Ram** and M. M. Sarin (2012), Carbonaceous Aerosols over Northern India: Sources and Spatio-temporal variability, Proceedings of the Indian National Science Academy, 78 (3), 523-533 (Number of Citation=**0**; **IF=NA**).
 8. P. M. Shamjad, S.N. Tripathi, S. G. Aggarwal, S.K. Mishra, Manish Joshi, Arshad Khan, B.K. Sapra, **K. Ram** (2012), Comparison of experimental and modeled absorption enhancement by Black Carbon (BC) cored polydisperse aerosols under hygroscopic conditions, *Environ. Sci. Technol.* 46 (15), 8082–8089, doi:10.1021/es300295v (Number of Citation=**08**; **IF=5.257**)
 9. **K. Ram**, M. M. Sarin., R. Rengarajan and A.K. Sudheer (2012), Secondary inorganic aerosols and oxidation ratios during wintertime fog and haze events at urban sites in the Indo-Gangetic Plain, *Aerosol Air Quality Res.*, 12 (3) 359-370, doi: 10.4209/aaqr.2011.07.0105 (Number of Citation=**20**; **IF=2.847**)
 10. **K. Ram** and M. M. Sarin (2012), ^{210}Po , ^{210}Pb and $^{210}\text{Po}/^{210}\text{Pb}$ activity ratios in urban aerosols: Temporal variability and impact of boundary layer dynamics, *Tellus-B*, 64, 17513, DOI: 10.3402/tellusb.v64i0.17513 (Number of Citation=**01**; **IF=4.382**).
 11. Kondo Y., **K. Ram**, N. Takegawa, L. Sahu, Y. Morino, X. Liu and T. Ohara (2012), Reduction of Black Carbon Aerosols in Tokyo: Comparison of real-time observations with emission estimates, *Atmos. Environ.*, 54, 242–249, doi: 10.1016/j.atmosenv.2012.02.003 (Number of Citation=**04**; **IF=3.11**).
 12. **K. Ram**, M.M. Sarin and S. N. Tripathi (2012), Temporal trends in atmospheric PM_{2.5}, PM₁₀, EC, OC, WSOC and optical properties of aerosols from Indo-Gangetic Plain: Impact of biomass burning emissions, *Environ. Sci. Technol.* 46 (2), 686–695, doi:10.1021/es02857w (Number of Citation=**20**; **IF=5.257**).
 13. Srivastava, A. K., **K. Ram**, P. Pant, P. Hegde, and H. Joshi (2012), Black carbon aerosols over Manora Peak in the Indian Himalayan foothills: implications for climate forcing, *Environ. Res. Lett.*, 7, 014002, doi:10.1088/1748-9326/7/1/014002. (Number of Citation=**28**; **IF=3.582**)
 14. **K. Ram** and M. M. Sarin (2011), Day-night variability of EC, OC, WSOC and inorganic ions in urban environment of Indo-Gangetic Plain: Implications to secondary aerosol formation, *Atmos. Environ.*, 45, 460-468; doi:10.1016/j.atmosenv.2010.09.055 (Number of Citation=**49**; **IF=3.11**)
 15. **K. Ram**, M.M. Sarin and S. N. Tripathi (2010), A 1-year record of carbonaceous aerosols from an urban location (Kanpur) in the Indo-Gangetic Plain: Characterization, sources and

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- temporal variability, *J. Geophys. Res.-Atmospheres*, 115, D24313 doi:10.1029/2010JD014188 (Number of Citation=**78**; **IF=3.174**).
16. **K. Ram**, M. M. Sarin and P. Hegde (2010), Long-term record of aerosol optical properties and chemical composition from a high-altitude site (Manora Peak) in Central Himalaya, *Atmos. Chem. Phys.*, 10, 11791-11803; doi:10.5194/acp-10-11791-2010 (Number of citation=**48**; **IF=5.510**).
 17. **K. Ram**, M. M. Sarin, S. N. Tripathi (2010), Atmospheric black carbon and attenuation coefficient from an urban location in northern India: Inter-comparison of thermal and optical methods, *Atmos. Res.*, 97, 335-342, doi: 10.1016/j.atmosres.2010.04.06 (Number of Citation=**15**; **IF=2.20**).
 18. **K. Ram** and M. M. Sarin (2010), Spatio-temporal variability in atmospheric abundances of EC, OC and WSOC over northern India, *J. Aerosol Sci.* 41, 88-98; doi:10.1016/j.jaerosci.2009.11.004 (Number of Citation=**70**; **IF=2.686**)
 19. **K. Ram** and M. M. Sarin (2009), Absorption coefficient and site-specific mass absorption efficiency of elemental carbon in atmospheric aerosols from urban, rural and high-altitude sites in India, *Environ. Sci. Technol.* 43, 8233-8239; doi:10.1021/es9011542 (Number of citation=**28**; **IF=5.257**).
 20. **K. Ram**, M. M. Sarin and P. Hegde (2008), Atmospheric abundances of primary and secondary carbonaceous species at two high-altitude sites in India: Sources and temporal variability, *Atmos. Environ.*, 42, 6785-6795, doi:10.1016/j.atmosenv.2008.01.031 (Number of Citation=**70**; **IF=3.11**).

(ii) Abstracts in International/National Conferences:

1. **Kirpa Ram**, Sunita Singh, M.M. Sarin and S.N. Tripathi (2014), Assessment of aerosol optical properties at Kanpur using chemical composition data, **International Workshop on Assessing the Impact of Aerosols & Changing Climate on Monsoon & Extreme Events:** 12-14 January, 2015, Amity University, Gurgaon, India.
2. **Kirpa Ram**, M.M. Sarin, S.N. Tripathi and D. Bhattu (2014), Surface Measurements Of CCN, CN Concentration And Optical Properties At Kanpur: Impact Of Emission Sources And Secondary Aerosols, **Indian Aerosol Science and Technology Association (IASTA)-2014 conference:** 11-13 Nov, 2014, Varanasi, India.
3. **K. Ram**, A. K. Srivastava, Sachhidanand Singh, S. Kumar and S. Tiwari (2014) Impact of Mineral Dust On Optical Properties And Radiative Effects Of Aerosol Over Manora Peak, **Indian Aerosol Science and Technology Association (IASTA)-2014 conference:** 11-13 Nov, 2014, Varanasi, India.
4. A. K. Srivastava, D. S. Bisht, **K. Ram**, S. Tiwari and Manoj K. Srivastava (2014) Carbonaceous aerosol characteristics at an urban station Delhi, in western Ganga basin region, , **Indian Aerosol Science and Technology Association (IASTA)-2014 conference:** 11-13 Nov, 2014, Varanasi, India.

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5. **Kirpa Ram**, M.M. Sarin and S.N. Tripathi (2014), Impact of biomass burning emissions on air-quality and physicochemical properties of aerosols over urban site, Kanpur, in the Indo-Gangetic Plain, **Sixth-Indo-German Frontiers of Engineering Symposia (INDOGFOE-2014)**, 22 - 25 May 2014, Potsdam, Germany.
6. **K. Ram**, A. K. Srivastava and S. Singh (2014), Aerosol optical properties and radiative effects over Manora Peak in Indian Himalayan foothills: Seasonal variability and role of mineral dust, **40th COSPAR Scientific Assembly 2014**, 2–10 August 2014, Moscow, Russia
7. **K. Ram** and M. M. Sarin (2012), Mass absorption efficiency of elemental carbon (EC) in ambient aerosols: Characterization from high-altitude sites in India, **AGU Fall meeting**, San Francisco, 3-7 December, 2012. Abstract Id: 1493932, Poster Id: A11A-0028.
8. P. M. Shamjad, S.N. Tripathi, S. G. Aggarwal, S.K. Mishra, Manish Joshi, Arshad Khan, B.K. Sapra, **K. Ram** (2012), Enhancement in BC absorption under varying hygroscopic conditions, **AGU Fall meeting**, San Francisco, 3-7 December, 2012. Abstract Id: 1493932, Poster Id: A51B-0025.
9. A. K. Srivastava, **K. Ram**, M.M. Sarin and S. Tiwari (2012), Heterogeneity in aerosol characteristics over the Indo-Gangetic Basin: Implications to the Himalayan climate, **AGU Fall meeting**, San Francisco, 3-7 December, 2012. Abstract Id: 1494188, Poster Id: A21A-0020.
10. P. M. Shamjad, S.N. Tripathi, S. G. Aggarwal, S.K. Mishra, Manish Joshi, Arshad Khan, B.K. Sapra, **K. Ram** (2012), Absorption enhancement of polydispersed aerosols under hygroscopic conditions, **Indian Aerosol Science and Technology Association (IASTA)-2012 conference**: Dec, 2012, Mumbai
11. **K. Ram** and M. M. Sarin (2010), Inter-relationship between atmospheric chemistry and mixing state of aerosols, **International symposium "Atmospheres of Terrestrial Planets: Observations and Modeling"**, Ahmedabad, India, 23-24 July 2012
12. X. Liu, Y. Kondo, **K. Ram**, H. Matsui, K. Nakagomi, N. Oshima, R.L. Verma and N. Takegawa (2012), Black carbon at a remote mountain site Happono in Japan, **ICACGP-IGAC-2012**: 17-21 Sep 2012, Beijing, China
13. **K. Ram** and M. M. Sarin (2012), Atmospheric ⁷Be in ambient aerosols: Implications to Stratosphere-Troposphere Exchange, **39th COSPAR Scientific Assembly 2012**, Mysore, India, 14-22 July 2012
14. **K. Ram** and M. M. Sarin (2012), Carbonaceous and secondary inorganic aerosols during wintertime fog and haze over urban sites in Northern India, **39th COSPAR Scientific Assembly 2012**, Mysore, India, 14-22 July 2012
15. **K. Ram** and M. M. Sarin (2010), Characteristics of Carbonaceous Aerosols from Indo Gangetic Plain and Central Himalaya, **International Union of Geodesy and Geophysics (IUGG)-2011**, 28 June - 7 July 2011, Melbourne, Australia, Abstract id: 3753.

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16. **K. Ram** and M. M. Sarin (2010), Secondary aerosol formation over urban atmosphere in the Indo-Gangetic Plain, northern India, **ICACGP-IGAC-2010**: 11-16 July 2010, Halifax, Canada.
17. **K. Ram** and M. M. Sarin (2009), Absorption properties of atmospheric aerosols from a high-altitude site in northern India, **European Aerosol Conference-2009**: 6-11 Sept 2009, Karlsruhe, Germany, Abstract id: T091A27.
18. **K. Ram**, M.M. Sarin and S.N. Tripathi (2009), One-year record of carbonaceous aerosols from urban location (Kanpur) in the Indo-Gangetic Plain (IGP), **European Aerosol Conference-2009**: 6-11 Sept 2009, Karlsruhe, Germany, Abstract id: T059A16.
19. **K. Ram**, A. K. Sudheer and M. M. Sarin (2009), Chemical characteristics of aerosols during foggy and clear days: Case study from northern India, **European Aerosol Conference-2009**: 6-11 Sept 2009, Karlsruhe, Germany, Abstract id: T042A09.
20. **K. Ram** and M. M. Sarin (2009), Site-specific mass absorption efficiency of EC in atmospheric aerosols from urban, rural and high-altitude sites in India, **MOCA-2009**: 19-29 July, 2009, Montreal, Canada.
21. **K. Ram** and M. M. Sarin (2008), Carbonaceous aerosols in urban and high-altitude environment of north-India, **International Conference on Carbonaceous Aerosols (ICCPA-2008)**: 12-14 Aug 2008, Berkeley, California.
22. **K. Ram**, R. Rengarajan, M. M. Sarin and A. K. Sudheer (2008), Relevance of soot particles in the present-day context of atmospheric carbon cycle and climate change, **International Conference on Terrestrial Planets: Evolution through time**: 22-25 January, 2008, Ahmedabad, India.
23. **K. Ram**, M. M. Sarin and P. Hegde (2007), Carbonaceous species in atmospheric aerosols from high-altitude sites in India: Role of secondary organic carbon, **International Symposium on Aerosol-Chemistry-Climate Interactions**: 20-22 Nov 2007, Ahmedabad, India.
24. **K. Ram** and M. M. Sarin (2007), Causes for temporal variability of atmospheric ^{210}Pb & ^7Be in a semi-arid region: Implications to Stratosphere-Troposphere exchange, **International Symposium on Aerosol-Chemistry-Climate Interactions**: 20-22 Nov 2007, Ahmedabad, India.
25. **K. Ram** and M. M. Sarin (2007), Atmospheric carbonaceous species (EC, OC): Temporal variability over a high-altitude site in semi-arid region of western India, **Indian Aerosol Science and Technology Association (IASTA)-2007 conference**: 14-16 Nov, 2007, New Delhi, India

(iii) Books published:

Title: Carbonaceous aerosols over northern India: Chemical characterization and absorption properties, **Kirpa Ram** and M.M. Sarin, 2012, LAP LAMBERT Academic Publishing, Germany.

ISBN-13: 978-3-8473-0767-9

ISBN-10: 3847307673

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Citation analysis of published papers (as of February 5, 2015): The citation databases:

Web of Science (Scopus for a few that were not in Web of Science)

- i. Total number of papers published: 20 (13 papers as a lead author)
- ii. Cumulative IF of journal papers= >75
- iii. 5 papers with IF >5.0 and 14 papers with 2.0 < IF <5.0
- iv. Total citation (including self-citation)= ~450
- v. h-index: 11; i-index=11
- vi. Abstracts in Conferences: 25 (20 International + 05 National)

Research Grant:

Department of Science and Technology, Govt. of India: Atmospheric chemistry and evaluation of organic/inorganic aerosols: Implications to radiative forcing, (Kirpa Ram, Principle Investigator); Rs. 35 lakhs (Five years, 2013-2018)

Professional activities:

Member of American Geophysical Union (AGU)

Served as reviewers for various International journals including:

Atmospheric Environment, Atmospheric Chemistry and Physics, Journal of Geophysical Research, Atmospheric Research, Aerosol Air Quality and Research, Aerosol Measurement and Techniques, Aerosol Pollution Research, Journal of Geochemical Exploration, International Journal of Atmospheric Sciences, Current Science, International Journal of Environmental Analytical Chemistry

Organizing Conference/Workshop:

I was a member 16th Catalysis Workshop (4-5 Feb 2014) held at NEERI.

Session Chair:

16th Catalysis Workshop (4-5 Feb 2014) held at NEERI, Nagpur.

IASTA conference (11-13 Nov 2014) held at BHU, Varanasi.

Highlights of the Research work in media:

- i. The work, carried out at PRL, was also highlighted in the Indian print media news:
<http://www.pib.nic.in/newsite/efeatures.aspx?relid=71305>
<http://indiacurrentaffairs.org/impact-of-black-carbon-on-climate-kalpana-palkhiwala>
<http://www.dailyexcelsior.com/web1/11mar30/edit.htm>
- ii. Our research paper entitled: “*Black carbon aerosols over Manora Peak in the Indian Himalayan foothills: implications for climate forcing*” by Srivastava, et al., published in Environmental Research Letters, Vol 7, pp014002 (2012), is highlighted as one of the **most downloaded** articles across all the IOP Journals.
- iii. An Insight News Article on “*Insight: Black carbon aerosols in the Himalayas*” is published on **environmentalresearchweb** based on the research paper entitled: “*Black carbon aerosols over Manora Peak in the Indian Himalayan foothills: implications for climate forcing*” by

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Srivastava, et al., published in Environmental Research Letters, Vol 7, pp014002 (2012) [<http://environmentalresearchweb.org/cws/article/news/49090>].

- iv. The work, carried out at PRL, was also highlighted in the Indian print media news (The Times of India): Smoke from field fires can travel up to 1,000km: Study (http://articles.timesofindia.indiatimes.com/2012-11-12/pollution/35068301_1_black-carbon-greenhouse-gases-biomass)

I hereby declare that all the information given above is correct to the best of my knowledge.

Dr. Kirpa Ram

Date: February 5, 2015