

Curriculum Vitae

Personal Data:

Name: Dr. Saranjam Khan
Date of Birth: 01-06-1975
Place of Birth: Peshawar
Citizenship: Pakistan
Contact: +92-3349202831
Email: k.saranjam@yahoo.com, Saranjam@icp.edu.pk

Current Position: Working as Associate Professor, Physics Department, Islamia College University Peshawar.

Experience: 17 years R&D experience

Research Interest: Striving for bringing novel physical techniques from research laboratories into clinical practice. Currently focusing on the applications of Raman spectroscopy, fluorescence spectroscopy and confocal microscopy for the analysis of infectious diseases and other biological samples.

Student Supervision: Supervised 05 M.Phil Students.

Education:

Year of Completion	Degree
Sep. 2011	PhD studies in applied optics (Physics) under PhD program “Image Guided Diagnostic and Therapy” from Division for Biomedical Physics, Innsbruck Medical University, Austria.
Oct.2000 – Sep. 2002	Master of Science (MSc) in Nuclear Engineering Pakistan Institute of Engineering and Applied Sciences (PIEAS), Islamabad, Pakistan.
May.1997 – Sep. 1999	Master of Science (MSc) in Physics Department of Physics Peshawar University, Pakistan.

Oct.1994 – Dec. 1996	Bachelor of Science (BSc) Islamia College Peshawar, Peshawar University, Pakistan.
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Research Experience:

Period	Position held	Field of R&D	Organization
2002- 2004	Junior Scientist	Radiation Protection and Health Physics	Pakistan Atomic Energy Commission (PAEC)
2005- 2007	Senior Scientist	Radiation Protection and Health Physics	Pakistan Atomic Energy Commission (PAEC)
2008-2011	PhD Scholar	Applied Optics	Division for Biomedical Physics, Innsbruck Medical University Austria
2012- Octrber 2018	Principal Scientist	Biophotonics/ Applied Optics	Agri-Biophotonics Division, National Institute of LASER and Optronics (NILOP), PAEC
10-10-2018 till todote	Associate Professor	Physics	Islamia College University Peshawar

Awards:

- Aug. 2000 Award of fellowship by Pakistan Atomic Energy Commission for MSc Nuclear Engineering at PIAES
- Mar. 2007 Award of PhD studies scholarship by Higher Education Commission (HEC) of Pakistan

Reviewer:

Journal of Biomedical Optics

Publications in Peer Reviewed Journals (accumulative Impact Factor = 69.77):

1. **Saranjam Khan**, Rahat Ullah, Shaheen Shahzad, Nasira Anreen, Asifullah Khan, and Muhammad Bilal “Analysis of tuberculosis disease through Raman spectroscopy and machine learning” *J. Photodiagnosis Photodyn. Ther.* 24, 286-91 (2018).
2. Arsalan Amjad, Rahat Ullah, **Saranjam Khan**, Muhammad Bilal and Asifullah Khan, “Raman Spectroscopic Based Analysis of Milk using Random Forest Classification”, *Vibrational Spectroscopy* 99, 124-138 (2018).
3. **Saranjam Khan**, Rahat Ullah, Asifullah Khan, Ruby Ashraf, Hina Ali, Muhammad Bilal and Muhammad Saleem “Analysis of hepatitis B virus infection in blood sera using Raman spectroscopy and machine learning” *J. Photodiagnosis Photodyn. Ther.* 23, 89-93 (2018).
4. Hina Ali, Muhammad Saleem, Muhammad Ramzan Anser, **Saranjam Khan**, Rahat Ullah and Muhammad Bilal “Validation of Fluorescence Spectroscopy to Detect Adulteration of Edible Oil in Extra Virgin Olive Oil by Applying Chemometrics”, *Applied Spectroscopy* , 72(9) , 1371–1379 (2018).
5. Rahat Ullah, **Saranjam Khan**, Attaullah Shah, Hina Ali and Muhammad Bilal “Time-temperature dependent variations in beta-carotene contents in carrot using different spectrophotometric techniques” *Laser Phys.* 28: 055601 (2018).
6. Anabia Sohail, **Saranjam Khan**, Rahat Ullah, Shahzad Ahmed Qureshi, M. Bilal and Asifullah Khan “Analysis of hepatitis C infection using Raman spectroscopy and proximity based classification in the transformed domain” *Optics Exp.* 9 (5), 2041-2055, (2018).
7. Rahat Ullah, **Saranjam Khan**, Samina Javaid, Hina Ali, Muhammad Bilal and Muhammad Saleem “Raman spectroscopy combined with a support vector machine for differentiating between feeding male and female infants mother’s milk”, *Optics Exp.* 9 (2), 1250-1256, (2018).
8. **Saranjam Khan**, Rahat Ullah, Shaheen Shahzad, Samina Javaid and Asifullah Khan “Optical screening of nasopharyngeal cancer using Raman spectroscopy and support vector machine” *Optik* 157 565–570 (2018).

9. M. Saleem, Naveed Ahmad, Hina Ali, M. Bilal, **Saranjam Khan**, Rahat Ullah, M. Ahmed and S. Mahmmod “Investigating temperature effects on extra virgin olive oil using fluorescence spectroscopy” *Laser Phys.* 27 (2017).
10. M. Bilal, M. Saleem, Maria Bilal, **Saranjam Khan**, Rahat Ullah, Hina Ali, M. Ahmed and Masroor Ikram “Raman spectroscopy based screening of IgG positive and negative sera for dengue virus infection” *Laser Phys. Lett.* 14 (11) (2017).
11. Maria Bilal, M. Bilal, M. Saleem, **Saranjam Khan**, Rahat Ullah, Kiran Fatima, M Ahmed, Abbas Hayat, Shaista Shahzada and Ehsan Ullah Khan “Raman spectroscopy–based screening of hepatitis C and associated molecular changes” *Laser Phys. Lett.* 14 (9) (2017).
12. Naveed Ahmad, Muhammad Saleem, Hina Ali, Muhammad Bilal, **Saranjam Khan**, Rahat Ullah, Mushtaq Ahmed and S Mahmood “Defining the temperature range for cooking with extra virgin olive oil using Raman spectroscopy”, *Laser Phys. Lett.* 14 (9) (2017).
13. **Saranjam khan**, Rahat Ullah , Samina Javaid, Shaheen Shahzad, Hina Ali, Muhammad Bilal , Muhammad Saleem and Mushtaq Ahmed “Raman spectroscopy combined with principal component analysis for screening of nasopharyngeal cancer in the human blood sera”, *Applied Spectroscopy*, 71(11) ,(2017).
14. Rahat Ullah, **Saranjam Khan**, Hina Ali, Muhammad Bilal and Muhammad Saleem “ Identification of Cow and Buffalo Milk based on beta Carotene and Vitamin-A Concentration using Fluorescence Spectroscopy ”, *Plosone* 12(5): e0178055 (2017).
15. **Saranjam khan**, Rahat Ullah , Asifullah Khan, Anabia Sohail, Noorul Wahab, Muhammad Bilal and Mushtaq Ahmed “Random Forest Based Evaluation of Raman Spectroscopy for Dengue Fever Analysis”, *Applied Spectroscopy*, Volume 71(9) (2017)
16. Maria Bilal, Muhammad Bilal, Muhammad Saleem, Muhammad Khurram, **Saranjam Khan**, Rahat Ullah, Hina Ali, Mushtaq Ahmed, Shaista Shahzada and Ehsan Ullah Khan “Raman spectroscopy based investigation of molecular changes associated with an early stage of dengue virus infection” *Lasers Physics*, 47(4), (2017).
17. Muhammad Bilal, Rahat Ullah, **Saranjam Khan**, Hina Ali, Muhammad Saleem, and Mushtaq Ahmed “Lactate based optical screening of dengue virus infection in human sera using Raman spectroscopy” *J. Biomed. Optics Exp.* 8 (2), 1250-1256, (2017).

18. Rahat Ullah, **Saranjam Khan**, Hina Ali, Muhammad Bilal, Muhammad Saleem, Arshad Mahmood and Mushtaq Ahmed “Raman-spectroscopy-based differentiation between cow and buffalo milk” *Journal of Raman spectroscopy*, 48(5), 692-696 (2017).
19. **Saranjam Khan**, Rahat Ullah, Muhammad Khurram, Hina Ali, Arshad Mahmood, Ajmal Khan and Mushtaq Ahmed “Evaluation of Raman spectroscopy in comparison to commonly performed dengue diagnostic tests” . *Biomed. Opt.* 21(9), 095005 (2016).
20. Rahat Ullah, **Saranjam Khan**, Asifullah Khan, Muhammad Saleem, Hina Ali, Muhammad Bilal and Mushtaq Ahmed “Infant gender based differentiation in concentration of milk fats using near infrared Raman spectroscopy” *J Raman Spectroscopy*, 48(3) , 363-367, (2016).
21. M. Bilal, M. Saleem, Maria Bilal, T. Ijaz, **Saranjam Khan**, Rahat Ullah, A. Raza, M. Khurram, W. Akram and M. Ahmed “Raman spectroscopy based screening of IgM positive and negative sera for dengue virus infection ”, *Laser Phys.* 26 (11), (2016).
22. M. Bilal, M. Saleem, Maria Bilal, M. Khurram, **Saranjam Khan**, Rahat Ullah, Hina Ali and M. Ahmed “Raman spectroscopy based discrimination of NS1 positive and negative dengue virus infected serum” *Laser physics lett.* 13(9), (2016).
23. Irfan Ullah, Iftikhar Ahmad, Hasan Nisar **Saranjam Khan**, Rahat Ullah, Rashad Rashid, Hassan Mahmood “Computer assisted optical screening of human ovarian cancer using Raman spectroscopy” *J. Photodiagnosis Photodyn. Ther.* 15, 94-99 (2016).
24. **Saranjam Khan**, Rahat Ullah , Asifullah Khan, Noorul Wahab, Muhammad Bilal and Mushtaq Ahmed “ Analysis of dengue infection based on Raman spectroscopy support vector machine (SVM)” *J. Biomed. Optics Exp.* 7 (6), 2249- 2256 (2016).
25. Rahat Ullah, **Saranjam Khan**, Muhammad Bilal, Farwa Nurjis and Muhammad Saleem “Non-invasive assessment of mango ripening using fluorescence spectroscopy” *Journal Optik*, 127, 5186–5189 (2016).
26. **Saranjam Khan**, Rahat Ullah, Muhammad Saleem, Muhammad Bilal, Rashad Rashid, Inamullah khan, Arshad Mahmood and Muhammad Nawaz, “ Raman spectroscopic analysis of dengue fever using Raman spectroscopy”, *Journal Optik*, 127, 2086–2088 (2016).
27. **Saranjam Khan**, A. Jesacher, W. Nussbaumer, S. Bernet, and M. Ritsch-Marte. “Quantitative analysis of shape and volume changes in activated thrombocytes in real

time by single-shot spatial light modulator-based Differential Interference Contrast Imaging” J.Biophotonics 4(9), 600-609 (2011) .

28. A. Jesacher, C. Roider, **Saranjam Khan**, G. Thalhammer, S. Bernet, and M. Ritsch-Marte. “Contrast enhancement in wide-field CARS microscopy by tailored phase matching using a spatial light modulator “Opt. Lett. 36 (12) 2245-2247 (2011).
29. C. Maurer, **Saranjam Khan**, S. Fassel, S. Bernet, and M. Ritsch-Marte. “Depth of field multiplexing in microscopy”. Opt. Expr. 18(3) 3023-3034 (2010).
30. T.J. McIntyre, C. Maurer, **Saranjam Khan**, S.Bernet and M. Ritsch-Marte. “Quantitative SLM-based differential interference contrast imaging”. Opt. Exp. 18(13) 14063-14078 (2010).

Conference Talks given by Author at Internal Conferences:

- **Saranjam Khan** “Biomedical Application of Raman Spectroscopy” International Nathiagali Summer college, Islamabad, July, 2018.
- **Saranjam Khan**, C. Maurer, S. Fassel, S. Bernet, and M. Ritsch-Marte “*Multi-foci imaging by depth of field multiplexing with a spatial light modulator (SLM)*”. Swiss Physical Society (SPS) Annual Meeting , Basel Switzerland, June 2010.
- **Saranjam Khan**, A. Jesacher, S. Bernet, and M. Ritsch-Marte “*Real time quantitative analysis of physiological changes in activated thrombocytes using spatial light modulator based single frame DIC imaging*”. Joint Annual Meeting (SPS and ÖPG), Lausanne, Switzerland, June 2011.
- **Saranjam Khan** “Application and evaluation of Raman spectroscopy together with chemometrics for dengue fever analysis”, International Nathiagali Summer College, Islamabad, Pakistan, July 2018.

Poster Presentation at Internal conferences:

- **Saranjam Khan**, L.Machtoub, S. Bernet, M. Ritsch-Marte, “*Imaging of iron oxide nanoparticles in liver tissue using CARS microscopy in a wide-field setup*” 4th Annual

Meeting of PhD student Innsbruck Medical university, Innsbruck Austria, November 2008.

- **Saranjam Khan**, C.Maurer, S. Fassel, S. Bernet, M.Ritsch-Marte, “*Multi-plane imaging by depth of field multiplexing with an SLM*”, 5th Annual Meeting of PhD student Innsbruck Medical university, Innsbruck Austria, November 2009.
- **Saranjam Khan**, C. Maurer, S. Bernet, M. Ritsch-Marte, “*Real time analysis of a single thrombocyte using SLM-based differential interference contrast imaging*”, 6th Annual Meeting of PhD student of Innsbruck Medical university, Innsbruck Austria, November 2010.

Participation in the International Conferences/Workshops:

- 7th European conference on nonlinear optical spectroscopy (ECONOS 2008), 1st European conference on CARS microscopy (microCARS 2008), May 25-27 (2008), Igls Austria.
- Sixth annual CRS workshop at Harvard, June 24-26 (2009), Boston USA.