CURRICULUM VITAE (Brief)

Dr. PRASENJIT BARICK

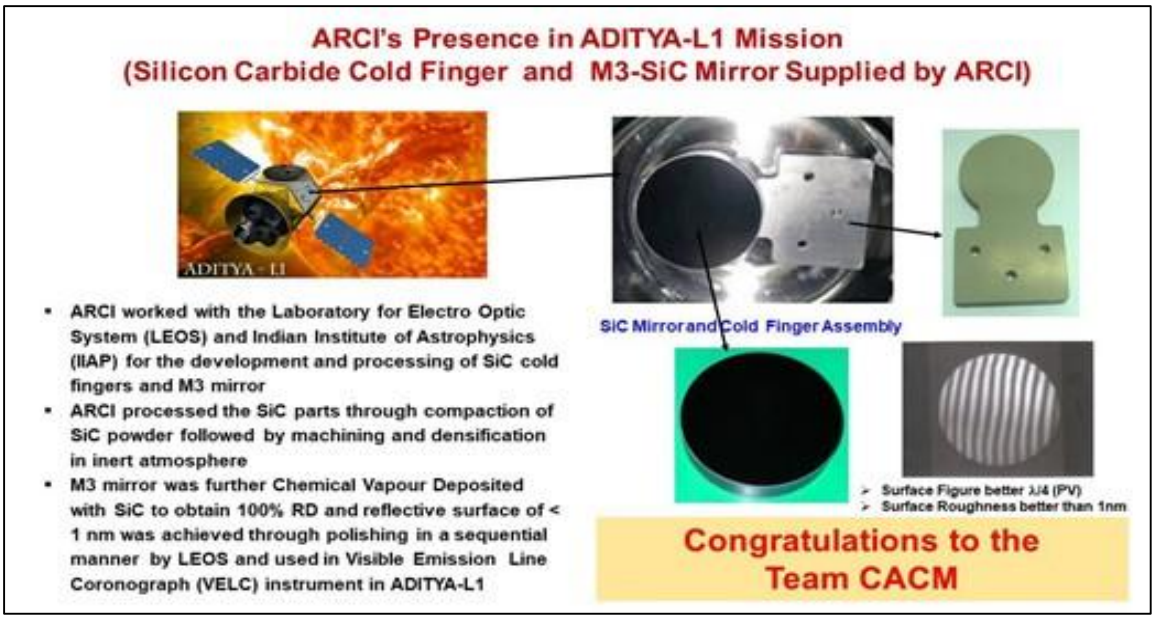
Office:
Scientist - F
Centre for Advanced Ceramic Materials (CACM)
International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI)
PO: Balapur, Hyderabad-500005, Telangana, India
Phone: +91-40-24452441 (O)
Fax: +91-40-24442699
Email: prasenjit@arci.res.in

EDUCATION

Ph.D. (Metallurgical and Materials Engineering)	IIT Kharagpur, INDIA Thesis title: ***Processing and structure-property relationships of nanocrystalline silicon carbide***	February, 2018
M.Tech (Ceramic Engineering)	IIT-BHU, Varanasi, INDIA	2005
B.Tech (Ceramic Technology)	College of Ceramic Technology (University of Calcutta), Kolkata, INDIA (*Presently, Govt. College of Engineering and Ceramic Technology*)	2001

Phenomenal achievement:

- ***Contributed to the successful development of Silicon Carbide (SiC) tertiary mirror (M3 mirror) and SiC cold finger for the Visible Emission Line Coronagraph (VELC) of Aditya-L1 satellite for solar observation, launched by ISRO Dtd. 2nd September, 2023.***



- ***Organized "Emerging Science, Technology and Innovation (ESTIC-2025) conclave" as part of ARCI team, held at Bharat Mandapam, New Delhi, on 03-05 Nov,2025. The conclave was graced by Honorable Prime Minister of India Shri Narendra Modi Ji.***

Projects (ongoing / completed):

(A) Ongoing (Sponsored)

1) Facility establishment and realization of low expansion glass-ceramics (A project funded by VSSC(ISRO) and RCI(DRDO)). Project value – 44 Crore INR.

2) Development and delivery of SiC tiles to MNIT-Jaipur (nodal point). Project value – 1.11 Crore INR.(Funded by Ministry of Textiles, Govt. of India).

(B) Completed (Sponsored)

3) Development of chemical vapor deposited silicon carbide (CVD-SiC) coated SiC mirror blank for space optics in satellite (Jointly sponsored by LEOS / ISRO, Bangalore and DST, Govt. of India). Project value – 40 Crore INR.

4) Development of CVD-SiC coated SiC mirror (M3) and SiC cold finger for the VELC payload of ADITYA-L1 satellite for solar observation. (A project funded by LEOS (ISRO)-Bengaluru and IIAP-Bengaluru). Project value – 5.5 Lakh INR.

5) High temperature (2200°C) graphitization of C-C composites blocks for the GAGANYAAN programme of ISRO. (Funded by VSSC-ISRO, Trivandrum). Project value – 1.75 Crore INR.

6) Development of state-of-the-art silicon carbide, boron carbide based hard ceramic inserts for protection system (Partially funded by ANTRIX / ISRO, Bangalore). Project value - 1.5 Crore INR).

7) Development of reaction bonded boron carbide (RBBC) ceramic (A spin-off project of (Sl. 6))

8) Development of hexagonal boron nitride (hBN) and silica (SiO_2) composite for application as Hall effect thrusters (Sponsored by VSSC/ISRO, Work carried out at CSIR-CGCRI, Kolkata).

(C) In-house :

9) Development of silicon nitride-based ceramic (e.g. SiAlON) for electromagnetic wave transparent window application (e.g. radome, substrate holder for microwave enhanced plasma CVD reactor).

WORK EXPERIENCE (Total 22 Y ; Research = 19 Y, Industry = 3 Y) (as on Dec, 2025)

Dec,2006 to present	Scientist at ARCI, Hyderabad
Jul, 2006 – Dec,2006	Assistant Manager at MISHRA DHATU NIGAM LIMITED (MIDHANI), Hyderabad
Jul, 2005 – Jun,2006	Graduate Engineer Trainee (GET) at MISHRA DHATU NIGAM LIMITED (MIDHANI), Hyderabad.
Sep, 2002 – Jun, 2003	Project Assistant at Non-oxide Ceramic division of Central Glass and Ceramic Research Institute (C.G.C.R.I.), Kolkata
Jun,2001 – Sep,2002	Site Engineer at Industrial Associates, Kolkata (Posted in Barauni oil refinery expansion project, Barauni, Bihar and Guwahati oil refinery, Guwahati, Assam)

PRESENT RESEARCH INTEREST

- Low-expansion glass-ceramic
- Low di-electric loss glass/glass-Ceramic for high frequency communication
- Non-oxide ceramics

PARALLEL RESPONSIBILITIES

- Nodal person from the center for monthly/quarterly progress report
- Member of internal safety audit committee
- Division coordinator for the usage of scanning electron microscope (SEM) facility (from 2017 to present).
- Member of inventory committee for three years at ARCI.
- Safety coordinator at CNOC, ARCI (from 2012 to 2025)
- Coordinator for rate contract procurement of chemicals at ARCI (Dec,2017 to March,2019)

LIST OF PUBLICATIONS

-(A)- As lead & corresponding author-

1) **P. Barick***, B.P. Saha, Sintering kinetics and prediction of viscosity of BaO-CaO-Al_2O_3-SiO_2 glass using heating stage microscope. **Accepted** in Physics and Chemistry of Glasses: European Journal of Glass Science and Technology Part B (2025).

2) **P. Barick***, S. Prusty, R. Chary V, B.P. Saha, Effect of B_2O_3/SiO_2 Ratio and Heat-Treatment Dwell Time on Phase Formation, the Microstructural and Mechanical Property of Sro-Cao-Al_2O_3-ZnO-B_2O_3-SiO_2-TiO_2 Glass System. Science of Sintering, 57(4) (2025) 531-542.

3) **P.Barick***, B.P. Saha, Effect of sintering parameters on the densification, microstructure, and mechanical properties of SrO-CaO-ZnO-Al2O3-B2O3-SiO2-TiO2 based glass sealant, Science of Sintering, 55 (2023)353-365.

4) **P. Barick***, B.P. Saha, Mixed particle size effect on improvement of mechanical properties of reaction bonded B_4C, Trans. Ind. Ceram. Soc., Vol. 82, No. 1, (2023), pp. 56-64 (2023).

5) **P. Barick***, B.P. Saha, Effect of sintering parameters on the densification, microstructure, and mechanical properties of SrO-CaO-ZnO-Al_2O_3-B_2O_3-SiO_2-TiO_2 based glass sealant, Science of Sintering, Vol.55(2023) pp. 353-365.

6) **P. Barick*,** B.P.Saha, Effect of boron nitride addition on densification, microstructure, mechanical, thermal and dielectric properties of β-SiAlON ceramic, Journal of Materials Engineering and Performance, Vol.30, (2021), pp.3603-3611.

7) **P. Barick***, B.V. Shalini, M. Srinivas, D.C. Jana, B.P. Saha, A facile route for producing spherical granules comprising water reactive aluminium nitride added composite powders, Advanced Powder Technology, Vol.31, No.5, (2020), pp. 2119-2127.

8) **P. Barick***, R. Mitra, B.P. Saha, Influence of a few important parameters on the rheological behaviour of silicon carbide nanoparticles dispersed aqueous suspension, Ceramics International, Vol. 44, No. 8 (2018), 9070-9075.

9) **P. Barick*,** A. Chatterjee, B. Majumdar, B.P. Saha, R. Mitra, Comparative evaluations and microstructure - mechanical property relations of sintered silicon carbide consolidated by various techniques, Metallurgical and Materials Transaction A (2018) 49(4) : 1182-1201.

10) **P. Barick*,** B.P. Saha, S.V. Joshi, R. Mitra, Spray-freeze-dried nanosized silicon carbide containing granules: Properties, compaction behaviour and sintering, Journal of European Ceramic Society, 36(2016) 3863-3877.

11) **P. Barick*,** D. Chakravarty, B.P. Saha, R. Mitra, S.V.Joshi, Effect of pressure and temperature on microstructure and mechanical properties of spark plasma sintered silicon carbide processed with β-SiC nanopowder and sintering additives, Ceramics International 42(2016) 3836-3848.

12) **P. Barick*,** B.P. Saha, R. Mitra, S.V. Joshi, Effect of concentration and molecular weight of polyethylenimine on zeta potential, isoelectric point of nanocrystalline silicon carbide in aqueous and ethanol medium, Ceramics International 41(2015) 4289-4293.

13) **P. Barick***, D.C. Jana, B.P. Saha, Load-dependent indentation behavior of β-SiAlON and α-Silicon carbide, Journal of Advanced Ceramics 2 (2013) 185-192.

14) **P. Barick***, D.C. Jana, N. Thiyagarajan, Effect of particle size on the mechanical properties of reaction bonded boron carbide ceramics, Ceramics International 39 (2013) 763-770.

15) **P. Barick***, R. Lodha, R. Pyare, G.N. Agrawal, Zirconia- Part II : A, A review of nanoparticle synthesis by Sol-Gel, Indoceram, Vol.41, No.3, (2004), pp. 7-11.

**** Corresponding author***

-(B)- As co-author-

16) Bhaskar Prasad Saha, Dulal Chandra Jana, **P. Barick**, V. Natarajan, Suresh Venkata, R. Venkateswaran, P. U. Kamath, Roy Johnson , K.V. Shriram, B. Raghavendra Prasad and G. Padmanbham, Silicon Carbide-based Functional Components in Visible Emission Line Coronagraph (VELC) on board ADITYA-L1 Mission, Current Science, 125(12)2023, pp.1323-1327.

17) S. Manivannan, P. Biswas, **P. Barick**, S. Kumari, B. P. Saha, R. Johnson, Comparative study on compaction and sintering behavior of spray and freeze granulated magnesium aluminate spinel powder, Trans. Ind. Ceram. Soc., Vol. 80, No. 2, (2021), pp. 1- 8.

18) D.C. Jana, **P. Barick**, B.P. Saha, Effect of sintering temperature on densities and mechanical properties of solid-state sintered silicon carbide ceramics and evaluation of failure origin, Journal of Materials Engineering and Performance, Vol. 27, No. 6 (2018), 2960-2966.

19) S.V. Amrut Raj, D.C. Jana, **P. Barick**, B. P. Saha, Microstructure evolution in densification of SiC ceramics by aluminium vapour infiltration and investigation of mechanical properties, Ceramics International, Vol. 44, No. 8 (2018), 9221-9226.

20) I.Ganesh, N. Thiyagarajan, D.C. Jana, **P. Barick,** and G. Sundararajan, An aqueous gelcasting route to dense β-$Si_4Al_2O_2N_6$-0.5SiO_2 ceramics, Journal of American Ceramic Society, 91 (2008) 1566 –1571.

21) I.Ganesh, N. Thiyagarajan, D.C. Jana, **P. Barick,** G. Sundararajan, and J.M.F. Ferreira, Dense β- SiAlON consolidated by a modified hydrolysis assisted solidification route, Journal of the European Ceramic Society, 28 (2008) 879-885.

22) S.Ghosh, R. Lodha, **P. Barick,** S. Mukhopadhayay, Improvement of thermal characteristics of refractory castable by addition of gel-route spinel nanoparticles, Materials and Manufacturing processes 22 (2007) 81-90.

23) S. Mukhopadhayay, S. Ghosh, M.K. Mahapatra, R. Mazumder, **P. Barick**, S. Gupta, S. Chakraborty, Easy-to-use mullite and spinel sols as bonding agents in a high-alumina based ultra low cement castable, Ceramics International 28(2002) 719-729.

CONFERENCE PRESENTATIONS AND PARTICIPATION

1) Presented a paper on 'Sintering and Thermal Characteristics of BaO-CaO-Al2O3-SiO2 Based Glass System' in 'International Conference on Research Advancements and Industrial Challenges in Glass and Ceramics (RAICGC 2025)" – **89th annual session of Indian Ceramic Society,** held on 27-29th December 2025, at IIT Mumbai, Maharashtra, India.

2) Presented a paper on 'Lithium Aluminosilicate glass-ceramic : salient properties and thermal characteristics' in **16th Pacific rim conference on ceramic and glass technology including glass & optical materials division meeting (GOMD 2025)**, on 04-09 May,2025, held at Vancouver, British Columbia, Canada (Organized by The American Ceramic Society).

3) Presented a paper on 'Lithium Aluminosilicate low-expansion glass-ceramic – Composition effect on salient properties, crystallization mechanism' in **27th International congress on glass (ICG 2025)**, on 20-24th January,2025, held at Viswa Bangla Convention Center, Kolkata, India (Organized by CSIR-CGCRI, Kolkata).

4) Presented a paper on 'Silicon Carbide : processing, properties, and critical applications' in **International conference on frontier in ceramic materials (ICFCM 2024)**, on 16-18th December,2024, held at IIT-BHU, Varanasi, Uttar Pradesh, India. (INVITED)

5) Presented a paper on 'A comparative evaluation between densification, microstructure and mechanical properties of spark plasma sintered and hot-pressed SiC' in **National symposium on Sintering (NSS-24), on 16-18th May,2024**, held at IIT-Patna, Bihar, India.

6) Presented a paper on 'sintering parameters and composition dependent densification, microstructure and mechanical properties of strontium-aluminosilicate glass sealant for SOFC' in **National symposium on electrochemical science and technology (NSEST-2023)**, held on 17-18th December, 2023 at ARCI-Hyderabad, Telangana, India.(INVITED)

7) Presented a paper 'On the sintering of SrO-CaO-B_2O_3-Al_2O_3-ZnO-SiO_2-TiO_2 glass system' in 'International Conference on Global Trends in Traditional to Space Ceramics (GT-TSC'22) – **86th Annual session of Indian Ceramic Society**, on 08-09th December 2022, held at IIT-BHU, Varanasi, Uttar Pradesh, India.

8) Participated in two (02) days conference in **International conference on Functional and Advanced Materials (ICFAM-2019)**, held on 09-10th December, 2019 at CSIR-NIIST, Trivandrum, Kerala

9) Presented a paper on 'Effect of boron carbide particles size on microstructure and mechanical properties of reaction bonded boron carbide' in 'Innovation and Technologies for Ceramics (InTec)" - **83rd annual session of Indian Ceramic Society,** held on 11-12 December 2019, at NIIST, Trivandrum, Kerala, India.

10) SiAlON radome for missile applications" in **International Conference on Advanced Materials and Processes for Defense Application (ADMAT 2019),** 23-25 September, 2019, held at Hyderabad, Telangana, India.

11) Ballistic Performance of Silicon Carbide Armor" **in International Conference on Advanced Materials and Processes for Defense Application (ADMAT 2019),** 23-25 September,2019, held at Hyderabad, Telangana, India.

12) Presented a poster on 'Effect of processing parameters on the characteristics of spray - freeze - dried silicon carbide granules and its importance on the improvement of mechanical properties, in '**81st annual session of Indian Ceramic Society and International Conference on Expanding Horizons of Technological Applications of Ceramics and Glasses (EH-TACAG'17)'**, on 14 - 16 December, 2017, held at COEP, Pune, Maharashtra, India.

13) Presented a paper on 'Microstructure, mechanical properties and Weibull modulus of reaction bonded boron carbide Ceramics' in **'International Conference on Ceramics (ICC-12)**' on 12-13 December, 2012, held at Bikaner, Rajasthan, India.

14) Presented a paper on 'Application of alumina bearing sol in no cement alumina based refractory monolithics' in '**National seminar on recent development on monolithic refractories**' on 5 March 2005, held at IT-BHU, Varanasi, U.P. India.

15) Presented a paper on 'Synthesis and characterization of nanozirconia powder' in '**68th annual session of Indian Ceramic Society'**, on 21-24 December, 2004, held at BARC, Mumbai, Maharashtra, India.

16) Participated in the **15th Annual General Meeting of Materials Research Society of India (AGM-MRSI)**, held on 9-11th February, 2004 in IT-BHU, Varanasi.

17) Presented poster on 'New additives for castable via sol-gel route" in the **national seminar on Refractories & Furnaces – New options & New Values (REFUR-2000)**', held at CG&CRI, Kolkata during the period December 21-22, 2000.

REVIEWER

- Ceramics International
- Journal of Materials Science and Technology
- International Journal of Applied Ceramic Technology
- Transaction of the Indian Ceramic Society

AFFILIATIONS

Life Member	Indian Institute of Metals (IIM)

Life Member	Materials Research Society of India (MRSI)
Life Member	Indian Ceramic Society (InCers)
Life Member	Sensor Research Society (SRS)

(PRASENJIT BARICK)