

## CURRICULUM VITAE



### 1. Personal Details

Name and correspondence address : Dr. Ashok Kamaraj  
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Dept. of Materials Science and Metallurgical  
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### 2. Degrees

S.No	Degree	Award date	Subject	Institute & University	Locality
01	PhD.,	March 2020	Materials & Metallurgical Engineering	CSIR-NML Jamshedpur, AcSIR <sup>#</sup>	Jamshedpur, India
02	M.Tech.,	August 2014	Materials & Metallurgical Engineering	CSIR-NML Jamshedpur, AcSIR <sup>#</sup>	Jamshedpur, India
03	B.E.,	May 2011	Metallurgical Engineering	Govt. College of Engineering, Anna University, Chennai	Salem, Tamil Nadu, India

<sup>#</sup> ACSIR – Academy of Scientific and Innovative Research, Ghaziabad, India

### Details of Ph.D. thesis:

Year of thesis submission/degree awarded : May 2019 / March 2020  
Title : Analysis and Control of Slag Carryover during Steelmaking  
Guides/Supervisors : Dr. Gopi K Mandal, CSIR-NML and Prof. Gour G Roy, IIT Kharagpur  
Institute : CSIR-NML, Jamshedpur, India  
University : AcSIR, Ghaziabad, India  
Contact details : Dr. J. K. Sahu, AcSIR Coordinator, CSIR-NML  
[jksahu@nmlindia.org](mailto:jksahu@nmlindia.org)

### 3. Other education and expertise

-Nil-

### 4. Language Skills

Full proficiency : English  
Working proficiency : Hindi  
Mother tongue : Tamil

### 5. Current Employment

S No	Positions Held	Name of the Institute	From	To	Pay Scale
01	Asst. Professor	Dept. of MSME, IIT Hyderabad	27.12.2021	Present	Level 11 Cell 13
02	Asst. professor	AcSIR, CSIR-NML, Jamshedpur	17.08.2020	Present	-Nil-

### 6. Previous Work Experience

S No	Positions Held	Name of the Institute	From	To	Pay Scale
1	Senior Scientist	CSIR-NML, Jamshedpur	08.09.2019	24.12.2021	Level 12 Cell 3
2	Scientist	CSIR-NML, Jamshedpur	08.09.2015	07.09.2019	Level 11 Cell 6
3	Tr. Scientist	CSIR-NML, Jamshedpur	03.09.2012	07.09.2015	Rs 4.27 (lpa)
4	Scientist	Bureau of Indian Standards	01.05.2012	30.08.2012	PB3 GP Rs 5400
5	Deputy Manager	Corporate Technology Center, TPI, Murugappa Groups	01.03.2012	30.04.2012	Rs 4.1 lpa
6	GET	JSW Steel Ltd	23.05.2011	28.20.2012	Rs 3.23 lpa

### 7. Career Breaks

-Nil-

### 8. Research Funding and Grants (before joining IITH)

SNo	Title ( <i>Project number</i> )	Cost (Rs. lakhs)	Duration	PI / Co-PI #	Agency
1	Development of hydrogen standard in steel ( <i>FTT 31 02</i> )	14	01 year (completed)	PI	CSIR HQ (FTT Project)
2	Control and analysis of non-metallic inclusion in semi-finished electrical steel ( <i>OLP 256</i> )	15	04 years (completed)	PI	CSIR-NML (In-house project)
3	Development and fabrication of cannon liners for explosive testing – ( <i>GAP 256</i> )	56.38	2.5 years (ongoing)	PI #	CIMFR, Dhanbad

4	Dip mould simulator-based technique for qualification of mould powders for crack sensitive grade steels ( <i>CLP 201</i> )	35	21 months (completed)	PI	Tata Steel Ltd, Jamshedpur
5	Scale up and commercialization of indigenously developed hydrogen standard in steel ( <i>FTC 31 04</i> )	78.5	01 year (completed)	PI	CSIR HQ (FTC Project)
6	Reduction of energy consumption in iron ore sintering by modified coke breeze distribution ( <i>CLP</i> )	28	01 year (completed)	Co-PI	Tata steel Ltd, Jamshedpur
7	Development of advance steels by thin strip casting and direct rolling ( <i>OLP</i> )	10	01 year (completed)	Co-PI	CSIR-NML (In-house project)
8	Preparation and certification of hydrogen standard (CRM) in steel ( <i>OLP 370</i> )	2.7	06 months (completed)	PI	CSIR-NML (In-house project)
9	Development of a Cost-Effective Refractory Lining Materials for Induction Melting Furnace Suitable for Production of Quality Steel: Phase II Industrial Trials ( <i>GAP 281</i> )	68	18 months (ongoing)	Co-PI #	Ministry of Steel (NISST & CGCRI)
10	Development of CS analytical and Charpy Impact Specimen physical standard in steel	99.4	24 months (ongoing)	PI #	CSIR HQ (FTT Project)
11	Amorphous Electrical Steel (AES) for Energy Application	3634	03 years (completed)	Member	Ministry of Steel, Govt. of India
12	Identifying causes for crack development in billets and rounds during hot rolling at VSP	40	01 year (completed)	Member	RINL, Vizhakatnam
13	Investigation on hydrogen trapping characteristics of precipitate/matrix interfaces in micro-alloyed steel	43	01 year (completed)	Member	Tata Steel Ltd, Jamshedpur
14	Study on Mold flux-liquid steel interaction using lifting hearth furnace	7.5	6 months (ongoing)	PI #	Tata Steel Ltd, Jamshedpur
15	Study on dephosphurization of hot metal in induction furnace	5.4	6 months (completed)	PI	Tata Steel Ltd, Jamshedpur
16	Effect of processing parameters on cryo impact properties of cast alloys	30.12	24 months (ongoing)	Member	VSSC, Trivandrum

PI: Principal Investigator, Co-PI: Co Principal Investigator # till 24<sup>th</sup> Dec 2021

## 9. Research Output (before joining IITH)

### Journal Publications:

Total number of publications: 24 (19 SCI & 5 Non-SCI)

- [1. Characterization and Assessment of Mold Flux for Continuous Casting of Liquid Steel Using an Inverse Mold Simulator: Ashok Kamara<sup>#</sup>, S. Tripathy, G. Chalavadi, P. P.](#)

- Sahoo, S. Misra: Steel Research International (2021) Vol. 51B, pp. 2159-2170. (accepted, DOI:10.1002/srin.202100121)
2. [Role of Synthetic Slag Treatment on the Morphology of Non-Metallic Inclusions and Subsequent Cold Drawability of the High Carbon Wire Rod Steel](#): Alok Srivastava, **Ashok Kamaraj**<sup>#</sup>, D Mandal, K Mandal, G. K. Mandal: Metals and Materials International (2021) Vol. 51B, pp. 2159-2170. (accepted, DOI: 10.1007/s12540-021-01060-0)
  3. [A comparative study on environmental impact analysis of synthetic and ESR flux used for refining of steel](#): **Ashok Kamaraj**, Rohit B Meshram<sup>#</sup>: Procedia CIRP (2021) Vol. 98, pp. 448-451.
  4. [Investigation on Mould Flux Melting and Consumption during Continuous Casting of Liquid Steels](#): **Ashok Kamaraj**<sup>#</sup>, Ansuman Dash, Premkumar M, Siddhartha Misra: Materials and Metallurgical Transactions B (2020) Vol. 51B, pp. 2159-2170.
  5. [High Temperature simulation of continuous casting mould phenomena](#): **Ashok Kamaraj**<sup>#</sup>, N. Haldar, Premkumar M, and S. Misra: Transaction of Indian Institute of Metals, Vol. 73, 8 (2020) pp 2025-2031. **(Best Paper award in IMME 2019)**
  6. [Thermodynamic Assessment of Steelmaking Practices for the Production of Re-sulfur Steels](#): Prithiv T. S, Thirumurugan G, Madan M and **Ashok Kamaraj**<sup>#</sup>: Transaction of Indian Institute of Metals, Vol. 73, 6 (2020) pp 1595-1603.
  7. [Development of speciality grade wire by controlling the inclusions in high carbon steel using synthetic slag treatment](#): G. K. Mandal, **Ashok Kamaraj**<sup>#</sup>, M. M. Humane, R. K. Minj, S. K. Das, R. B. V Ramana and T. Venugopalan: Transaction of Indian Institute of Metals Vol. 72, 2 (2019) pp 369-381.
  8. [Control of Slag Carryover from BOF Vessel during Tapping: BOF Cold Model Studies](#): **Ashok Kamaraj**<sup>#</sup>, G.K. Mandal, G G Roy: Materials and Metallurgical Transactions B, (2019) Vol. 50B, pp. 438-458.
  9. [Role of precipitates in recrystallization mechanisms of Nb-Mo micro-alloyed steel](#): Gopi K. Mandal<sup>#</sup>, Siddhartha S. Das, Tipu Kumar, **Ashok K**, K. Mondal, V. C. Srivastava: Journal of Materials Engineering and Performance, (2018) Vol. 27(12), pp. 6748-6757.
  10. [Development of stretch flangeable grade steels by Inclusion Engineering Approach](#): G. K. Mandal, **Ashok K**<sup>#</sup>, S. K. Das, P. Biswas, R. B. Sarkar, Sundara Bharathy R, V.C. Srivastava: Journal of Materials Engineering and Performance, (2018) Vol. 27(11), pp. 5622-5634.
  11. [On the Intercritical Annealing Parameters and Ensuing Mechanical Properties of Low-Carbon Medium-Mn Steel](#): Gaurav K. Bansal<sup>#</sup>, D.A. Madhukar, A.K. Chandan, **K. Ashok**, G.K. Mandal, V.C. Srivastava: Materials Science and Engineering A, Vol. 733 (2018) pp 246-256.
  12. [Investigation on Causes of Defect Formation during Hot Rolling of Steel Blooms](#): **Ashok Kamaraj**<sup>#</sup>, Gopi K Mandal, A P Murugesan, P Anil Kumar, Vikas C Srivastava and Manoj M Humane: Steel Tech, Vol. 12 No 4 (2018) pp 42-50.
  13. [State of the Art Control Measures for Aluminium Fade and SEN Clogging during Steelmaking Operations](#): **Ashok Kamaraj**<sup>#</sup>, R Saravanakumar and M Rajaguru: IOP Conference Series: Materials Science and Engineering, Vol. 314 (2018) pp 012022.
  14. [Microbiological corrosion of ASTM SA105 carbon steel pipe for industrial fire water usage](#): S Chidambaram<sup>#</sup>, **K Ashok**, V Karthik and P G Venkatakrishnan: IOP Conference Series: Materials Science and Engineering, Vol. 314 (2018) pp 012027.
  15. [Shear Fracture and Industrial Overload Failure of Mechanical Fuse Shear Pin](#): S Chidambaram<sup>#</sup>, **Ashok Kamaraj**, R Saravana Kumar and V Karthik: IOP Conference Series: Materials Science and Engineering, Vol. 377 (2018) pp 012004.
  16. [Process evaluation of AOD stainless steel making in Salem Steel Plant, SAIL](#): **Ashok K**<sup>#</sup>, Sankar P, Maruthupandian K: Journal of Metallurgy and Materials Science, Vol. 59, No. 4, October-December 2017, pp. 173-180.

17. [\*Characterization and Evolution of Non-metallic Inclusions in Fe–Al–Si–O System\*](#): **Ashok K<sup>#</sup>**, G K Mandal, R K Minj, S Misra, D Bandyopadhyay: Transaction of Indian Institute of Metals Vol. 70 7 (2017) pp 1887-1899.
18. [\*Experimental investigation on microstructure and mechanical properties of gravity-die-cast magnesium alloys\*](#): Palash Poddar, Sumanta Bagui, **K Ashok**, A P Murugesan<sup>#</sup>: Journal of Alloys and Compounds, Vol. 695, (2017) 895 – 908.
19. [\*Estimation and analysis of excess oxygen input into ladle during liquid steel tapping\*](#): **Ashok K<sup>#</sup>**, S Hore, G G Roy, G K Mandal: Transaction of Indian Institute of Metals Vol. 70 9 (2017) pp 2465-2476. **(Best Paper award in IMME 2017)**
20. [\*Microstructural features of Mg-8%Sn alloy and its correlation with mechanical properties\*](#): P Poddar<sup>#</sup>, **Ashok K**, A P Murugesan, S Bagui, K L Sahoo: International Journal of Magnesium and Alloys Vol 5 3 (2017) pp 348-354.
21. [\*Failure investigation of an industrial crankshaft made of ductile iron\*](#): S Chidambaram<sup>#</sup>, **Ashok Kamaraj**: Advances in Natural and Applied Sciences (2017) Vol 11 (8), pp 25-30.
22. [\*Theoretical Investigation on Deoxidation of Liquid Steel for Fe-Al-Si-O System\*](#): **Ashok K<sup>#</sup>**, G K Mandal, D Bandyopadhyay: Transaction of Indian Institute of Metals Vol. 68 (2015) sp - 1, pp 9-18.
23. [\*Micro-mechanical behaviour of AA2014 Alloy during Hot Tensile Testing\*](#): **Ashok K<sup>#</sup>**, K Maruthupandian, K Ganesh Kumar, S Vishal: Transaction of Indian Institute of Metals Vol. 68 (2015) sp - 1, pp 19-24.
24. [\*Effect of Steel Making Slag on Castability of Medium Carbon Re-sulphur Steel Grades\*](#): **Ashok K<sup>#</sup>**, Venkatesan J, P G Venkatakrishnan: Advanced Materials Research Vol. 585 (2012) pp 364-368.

<sup>#</sup> Corresponding author

### **Publications in Conference Proceedings:**

Total number of publications in conference proceedings: 14 (12 International & 2 National)

1. **Ashok Kamaraj<sup>#</sup>**, [\*“Glimpses of research on clean steel practices at CSIR-NML”\*](#) in an international seminar on Innovative Technologies for Production and Processing of Iron & Steel to remain Competitive & Sustainable, organized by Steel Tech, Kolkata on 19<sup>th</sup> Sep 2019.
2. **Ashok Kamaraj<sup>#</sup>**, Nimai Haldar, Premkumar Murugaiyan, and Siddhartha Misra, [\*“High Temperature Simulation of Continuous Casting Mould Phenomena”\*](#) in a national conference on Advances in Process Metallurgy organized by Indian Institute of Science Bangalore during 4-5<sup>th</sup> July 2019.
3. **Ashok Kamaraj<sup>#</sup>**, Kotta Navya, G G Roy, G K Mandal, [\*“Modelling and simulation studies on Liquid Steel Transfer Operations”\*](#) in an international conference on Asia Steel [2018], organized by Tata Steel Ltd and Indian Institute of Metals, Bhubaneswar.
4. **Ashok Kamaraj<sup>#</sup>**, Sushil Kumar, G G Roy, G K Mandal, [\*“Quantitative and Qualitative Analysis of Non-metallic Inclusions in Low Alloy Steel”\*](#) in an international conference on Asia Steel [2018], organized by Tata Steel Ltd and Indian Institute of Metals, Bhubaneswar.
5. **Ashok Kamaraj<sup>#</sup>**, G G Roy, G K Mandal, [\*“Modelling and simulation studies on BOF Tapping Process”\*](#) in an international conference on Science and Technology of Ironmaking and Steelmaking [STIS-2017], Indian Institute of Technology, Kanpur. (Vol 1 pp 403-406)
6. **Ashok Kamaraj<sup>#</sup>**, R Saravanakumar, M Rajaguru, [\*“State of the Art Control Measures for Aluminium Fade and SEN Clogging during Steelmaking Operations”\*](#) in an international conference on Advances in Metallurgy, Materials and Manufacturing [ICAMMM-2017], Government College of Engineering, Salem. (Vol 1, p. 271 – 277)

7. Chidambaram S<sup>#</sup>, Ashok K, [“Failure Investigation of industrial crank shaft made of cast iron”](#) in an international conference on Advances in Metallurgy, Materials and Manufacturing [ICAMMM-2017], Government College of Engineering, Salem. (Vol 1, p. 110 – 114)
8. Chidambaram S<sup>#</sup>, Ashok K, [“Shear Fracture and Industrial Overload Failure of Mechanical Fuse Shear Pin”](#) in an international conference on Advances in Metallurgy, Materials and Manufacturing [ICAMMM-2017], Government College of Engineering, Salem. (Vol 1, p.)
9. Ashok K<sup>#</sup>, G G Roy, G K Mandal, [“Physical modelling Investigation on Vorticity Dynamics During Liquid Steel Tapping”](#) in an international conference on Advances in Metallurgy, Materials and Manufacturing [ICAMMM-2017], Government College of Engineering, Salem. (Vol 1, p. 794) **(Best Paper award - ICAMMM 2017)**
10. Ashok Kamaraj<sup>#</sup>, [“Clean steel practices in steelmaking operations”](#) in a national conference on Quality Management Standards & Quality Management Tools (QMS & QTT-2016), MSME, Giridih Chapter. (Vol 1, p. 21 - 24)
11. Ashok K<sup>#</sup>, Venkatesan J, P G Venkatakrishnan, [“Quantification of Slag Carry Over & Its Effect on Melting Practice of Medium Carbon Re-sulphur Steel Grades”](#) in an international Conference on Science and Technology of Iron making and Steelmaking [STIS-2013], CSIR-NML Jamshedpur, Dec 16-18 2013.
12. Ashok K<sup>#</sup>, Sankar p, Maruthupandian K, P G Venkatakrishnan [“Process Evaluation of AOD Stainless Steel Making in Salem Steel Plant, SAIL”](#) in an International Conference on Science and Technology of Iron making and Steelmaking [STIS-2013], CSIR-NML Jamshedpur, Dec 16-18 2013.
13. Ashok K<sup>#</sup>, P G Venkatakrishnan, [“Formation of Alumina Inclusion and their Control Measures”](#) in an International Conference on Recent Advancement in Material Processing [RAMP-2011], PSG College of Technology, Coimbatore.
14. Ashok K<sup>#</sup>, Premkumar M, Ganesh Kumar K, P G Venkatakrishnan [“Inclusion Prediction and Evaluation of carbon Removal Efficiency in AOD Stainless Steel Making”](#) in an International Conference on Recent Advancement in Material Processing [RAMP-2011], PSG College of Technology, Coimbatore.

<sup>#</sup> Corresponding author

### **Software:**

1. [DeoxyCalc-Version 1.0” A computer model for prediction of the amount of deoxidizers in Ladle Furnace](#): Software copyright: Ashok K, Gopi K Mandal, D Bandyopadhyay: CR-0092/2014, India.

### **Patents:**

1. [Design of an auto dip mould simulator for simulation of initial solidification behaviour during continuous casting process](#): Equipment Design Patent: Ashok K, Ammasi A, Madan M, Nimai Haldar, Uday Bhaskar Rao, Ranjneesh Kr Gupta: NML/PAT0569/ 2019/IN, P/1152/12/2019, India

### **Most significant artistic works and processes**

1. [Know-How for Hydrogen standard in steel: Certified Reference Materials \(CRM\)](#): Ashok K, J K Sircar, A K Upadhyay, D Bandyopadhyay, M M Humane, J N Patel, D P Singh: CRM -501, July 2020, India.

## 10. Research Supervision and Leadership Experience (before joining IITH)

S.No	Item	Status	Role	Numbers
1	Undergraduate thesis	Completed	Principal supervisor	20
			Co-supervisor	-nil-
2	Master thesis	Completed	Principal supervisor	-nil-
			Co-supervisor	3
3	Ph.D. thesis	ongoing	Principal supervisor	1
			Co-supervisor	-nil-
4	Research project – supervision and execution as a leader		Project leader	9
			Co-project leader	3

## 11. Teaching Merits

- Course instructor for heat treatment lab course (MS3011) during Jan-Apr 2022.
- Coordinating the industry seminar course (MS5410) for M.Tech. during Jan-Apr 2022.

### Before joining IITH

- Taught secondary steelmaking course on “Advances in Steelmaking” course for post graduate students of AcSIR at CSIR-NML, Jamshedpur during Nov 2021.
- Video lectures on Blast Furnace Ironmaking (reactions, phase changes and complexities) published in YouTube channel can be found at [BF Ironmaking by Ashok Kamaraj](#)

## 12. Awards and Honors

S. No	Name of the Award / Honor	Awarding / Agency	Year
01	Reviewer appreciation certificate	Transaction of Indian Institute of Metals	Sep 2021
02	M. S. Khan Memorial award	IIM Jamshedpur Chapter	2020
03	Best Paper award in Oral Presentation (Presenting author)	IMME – International Conference on emerging trends in materials and manufacturing engineering conducted by NIT Trichy	2019
04	Swarna Jayanti Endowment Fund (SJEF): Partial travel grant for young scientist to attend 10 <sup>th</sup> International conference on Clean Steel at Budapest	Indian Institute of Metals (IIM)	2018
05	Best Paper award in Oral Presentation (Presenting author)	ICAMMM – International Conference on advancement of metallurgy, materials and manufacturing conducted by Govt. College of Engineering, Salem	2017
06	Best Paper award in Oral Presentation (Presenting author)	IMME – International Conference on emerging trends in materials and manufacturing engineering conducted by NIT Trichy	2017

07	Cash award for metallurgical e-book contest	National online contest conducted by IIM Jamshedpur	2014
08	First Prize in Metallurgical Quiz event	Behind the Teacher's Desk – technical seminar conducted by IIM Jamshedpur, CSIR-NML and TATA Steel	2013
09	First Prize in Oral presentation (Presenting author)	METTLE – technical seminar conducted by NIT Trichy and IIM Trichy Chapter	2011
10	Best Paper award in Oral Presentation (Presenting author)	CHROME – National conference conducted by IIM Trichy Chapter	2010
11	First Prize in Oral presentation (Presenting author)	METTLE – technical seminar conducted by NIT Trichy	2009
12	First Prize in Oral presentation (Presenting author)	SAKSHMA – technical seminar conducted by SASTRA University, Thanjavur	2009

### **13. Other Key Academic & Professional Merits**

1. Serving as **Joint Secretary** for the *Eastern Region of India Chapter of ASM International USA* located at OP Jindal University, Raigarh, Chhattisgarh, since Feb 2021.
2. **Executive Committee Member** of IIM Jamshedpur Chapter, since July 2021 to Dec 2021.
3. **Reviewer** in Metallurgical and Materials Transactions B, Journal of Material Research and Technology, Transaction of Indian Institute of Metals, Canadian Metallurgical Quarterly, and Materials Today Proceedings.
4. **Leader of the process metallurgy theme in the technical sub-committee** to organize an annual technical meeting as a part of *NMD-ATM 2021* organized jointly by Indian Institute of Metals (IIM) and Tata Steel Ltd, Jamshedpur.
5. Serving as **Member of Board of Studies – Metallurgical Engineering** constituted by the Department of Metallurgical Engineering of OP Jindal University, Raigarh, Chattisgarh for the duration May 2021 to April 2022.
6. **Member** of the organizing committee in a national essay contest on “*Metals and Materials*” during Jan 2021 organized by IIM Jamshedpur chapter as a part of platinum jubilee year celebration of IIM.
7. **Member** of the organizing committee for conducting “*Prof S N Sinha memorial IIM Essay and Elocution Contest for school students on metallurgy and materials engineering*” during Aug 2019 at CSIR-NML organized by IIM Jamshedpur chapter.
8. **Member** of the organizing committee in a national student seminar on “*e-Behind the Teachers Desk – eBTDD 2020*” during 28<sup>th</sup> Aug 2020 organized by IIM Jamshedpur chapter in association with CSIR-NML and Tata steel ltd.
2. **Coordinator** of the e-poster competition on “*Disruptive Innovations in Metals and Materials*” held at CFE, Jamshedpur during 13 Feb 2020.
3. **Coordinator** of the Technology based business idea pitching session during *one-day workshop on “Technopreneurship & Skilling: Opportunities and Challenges in Metal Sector (TES 2020)”* held at CFE, Jamshedpur during 10 Feb 2020.
4. Served as **Assistant Secretary** IIM Jamshedpur Chapter from June 2019 to July 2021.
5. Serving as **purchase committee member** of CSIR-NML, since June 2019.
6. **Executive committee member** of IIM Jamshedpur chapter, since 2015 to May 2019.
7. **Chairman of Young Leaders of IIM Jamshedpur chapter**, a shadow wing constituted by IIM Jamshedpur chapter consists of members less than 35 years of age for organizing innovative



events in the field of metallurgy and material science to motivate and create interest on young people, activating the student chapter etc.

8. **Convenor** of the undergraduate student's national seminar "*Behind the Teachers Desk – BTTD 2019*" during Sep 2019 organized by IIM Jamshedpur chapter in association with CSIR-NML and Tata steel ltd.
9. *Member* of the organizing committee for conducting "*Prof S N Sinha memorial IIM quiz for school students on metallurgy and materials engineering*" during Aug 2019 at CSIR-NML organized by IIM Jamshedpur chapter.
10. *Member* of the organizing committee for conducting Indo-German Bilateral Workshop on "*Additive Manufacturing of Metals – way forward and current issues*" during 4-6 Feb 2019 at CSIR-NML organized by CSIR-NML jointly with Leibniz-Institut für Werkstofforientierte Technologien, Bremen, Germany.
11. *Member* of the organizing committee for conducting "*Prof S N Sinha memorial IIM quiz for school students on metallurgy and materials engineering*" during Aug 2018 at CSIR-NML organized by IIM Jamshedpur chapter.
12. **Convenor** of the undergraduate student's national seminar "*Behind the Teachers Desk – BTTD 2018*" during July 2018 organized by IIM Jamshedpur chapter in association with CSIR-NML and Tata steel ltd.
13. **Coordinator** of the professional training program (PTP) "*Experimental Techniques in Iron and Steelmaking (ETIS 2017)*" held at CSIR-NML during 6-9 Dec 2017.
14. *Member* of the organizing committee for conducting a national workshop on "*Hot Dip Galvanizing Simulator (HDGS)*" during Aug 2017 at CSIR-NML organized by CSIR-NML, Jamshedpur
15. **Convenor** of the event "*Prof S N Sinha memorial IIM quiz for school students on metallurgy and materials engineering*" during Aug 2017 at CSIR-NML organized by IIM Jamshedpur chapter.
16. **Coordinator of the technical committee** in a national student seminar on "*Behind the Teachers Desk – BTTD 2017*" during June 2017 organized by IIM Jamshedpur chapter in association with CSIR-NML and Tata steel ltd.
17. *Member* of the national advisory committee for a TEQUIP-II sponsored "*International Conference on Advances in Metallurgy, Materials and Manufacturing (ICAMMM-2017)*" held at Hotel CJ Pallazio organized by Dept. of Metallurgical engineering, Govt. college of Engineering Salem in association with IIM Salem Chapter.
18. *Member* of the organizing committee for conducting "*Prof S N Sinha memorial IIM quiz for school students on metallurgy and materials engineering*" during Sep 2016 at CSIR-NML organized by IIM Jamshedpur chapter.
19. **Coordinator of the technical committee** in a national student seminar on "*Behind the Teachers Desk – BTTD 2016*" during June 2016 organized by IIM Jamshedpur chapter in association with CSIR-NML and Tata steel ltd.
20. *Member* of the organizing committee for conducting "*Prof S N Sinha memorial IIM quiz for school students on metallurgy and materials engineering*" during Sep 2015 at CSIR-NML organized by IIM Jamshedpur chapter.
21. *Member* of the organizing committee in a national student seminar on "*Behind the Teachers Desk – BTTD 2015*" during June 2015 organized by IIM Jamshedpur chapter in association with CSIR-NML and Tata steel ltd.
22. *Member* of the organizing committee for a national conference on "*Thermo-mechanical processing of steels & 5th Gleeble user workshops in India*" held at CSIR-NML, Jamshedpur during Aug 2015.

#### **14. Scientific and Societal Impact**

1. *Development of CRM products in steels* to align with Make in India and Aatma Nirbhar Scheme of Govt. of India.
2. Organized professional training programme for the engineers, faculties, researchers on *Experimental Techniques in Iron and Steelmaking (ETIS)* once in two years as a part of skill development programme from 2017 to 2021

#### **23. Other merits**

##### **Details of participation in conference/workshop/seminar as an invitee:**

1. **Guest of Honour** for the inaugural event of International Conference on Recent Developments in Materials Science and Applications (ICRDMSA 2020) on 24-25<sup>th</sup> Sep 2020 organized by Chennai Institute of Technology, Chennai.
2. **Panellist** for judging the oral presentation of "*eBTDD 2020 a national student seminar of metallurgy and materials science*" organized by IIM Jamshedpur chapter, CSIR-NML and Tata Steel Ltd Jamshedpur during 28<sup>th</sup> Aug 2020.

##### **Details of invited talks/lectures in workshop/seminar:**

1. Delivered an invited talk on "*Secondary Steelmaking & Continuous Casting of Liquid Steels*" in the training programme on "Industrial Training on Metallurgy" for diploma and undergraduate students from 27<sup>th</sup> September to 30<sup>th</sup> October organized by CSIR-National Metallurgical Laboratory in On-Line (MS-Team Platform).
2. Delivered an invited talk (keynote speaker) on "*Chronicle of Iconic Metal: Iron (Art to Science)*" in the 7<sup>th</sup> Scientists Science Teachers Conclave (SSTC2021) on 30<sup>th</sup> July 2021 organized by CSIR-National Metallurgical Laboratory in On-Line (MS-Team Platform).
3. Delivered an invited talk on "*Influence of Slag Carryover on Evolution of Non-Metallic Inclusion in 3.2wt% Si Steel*" in the International Metallurgical Processes Workshop for Young Scholars (IMPROWYS2021) during 27-28<sup>th</sup> July 2021 jointly organized by North-eastern University China and University of Leicester UK in On-Line Platform.
4. Delivered an invited talk on "*Process Innovations for Product Developments in Steel Industries*" in a one-day workshop on 'Recent advancements in Materials processing and Characterization on 19<sup>th</sup> June 2021 organized by Chennai Institute of Technology in On-Line (MS-Team Platform).
1. Delivered an invited talk on "*Understanding Steelmaking practices through Physical Simulation techniques*" in the five-day online Faculty Development Programme (FDP) on "*Recent Advances in process Metallurgy*" during 13-17<sup>th</sup> July 2020 organized by O. P. Jindal University, Raigarh in association with IIM Raigarh Chapter and ASM International.
2. Delivered a lecture on "*Introduction to clean steel practices in BOF-LF-VD-CC steelmaking*" in the professional training program on "*Experimental techniques in iron and steelmaking ETIS 2019*" during 10-13 Dec 2019 at CSIR-NML Jamshedpur.
3. Delivered an invited talk on "*Steel plant: Manager and researcher perspective*" in the student workshop "*Role of Metallurgists in Industries*" for metallurgical engineering students during 5<sup>th</sup> April 2019 at Govt. college of Engineering Salem jointly organized by GCE Salem and IIM Salem Chapter.
4. Delivered an invited talk on "*Glimpses of clean steel research in CSIR-NML*" in the knowledge sharing workshop on "*Steel cleanliness and slag practices*" during 23<sup>rd</sup> Nov 2018 at Visakhapatnam steel plant organized by IIM Visakhapatnam chapter jointly with IIT Bombay and M/s. Imerys.

5. Delivered an invited talk on “*Evolution of steels: alloy design and development*” in the national symposium “*METMAT’18*” for metallurgical engineers during 15-16 Feb 2018 at Govt. college of Engineering Salem jointly organized by GCE Salem and IIM Salem Chapter.
6. Delivered a lecture on “*Quality improvements during liquid steel processing*” in the professional training program on “*Experimental techniques in iron and steelmaking ETIS 2017*” during 06-09 Dec 2017 at CSIR-NML Jamshedpur.
7. Delivered an invited lecture on “*Clean steel technologies*” in the national workshop “*Ore to Steel 2017 (O2S)*” for metallurgical engineers during 06-07 Sep 2017 at Govt. college of Engineering Salem jointly organized by GCE Salem and IIM Salem Chapter.
8. Delivered an invited lecture on “*Ladle metallurgy and continuous casting of steels*” in the 4-day short course on “*Production and processing of steels*” during 22-25 Dec 2016 at Govt. college of Engineering Salem.
9. Delivered an invited lecture on “*Challenges and opportunities for non-metallurgists in metallurgical industries*” in the workshop on “*Metallurgy for Non-metallurgist*” during 07 Oct 2016 at Mahindra Institute of Engineering and Technology (MIET) Mallasamuthram.
10. Delivered a lecture on “*Clean steel practices in steelmaking operations*” in the seminar on “*Quality Management Standards & Quality Management Tools (QMS & QTT)*” during 27 July 2016 at Giridih organized by MSME.
11. Delivered an invited lecture on “*Phase changes and reactions in blast furnace*” and “*Ladle refining and continuous casting of steels*” in the national workshop “*Ferrous extractive metallurgy 2015*” for metallurgical engineers during 09-10 Jan 2015 at Amal Jyoti College of Engineering (AJCE) Kanjirapally.
12. Delivered an invited lecture on “*Ladle metallurgy and casting*” in the national workshop “*Ore to Steel 2012 (O2S)*” for metallurgical engineers during 26-27 March 2012 at Govt. college of Engineering Salem jointly organized by GCE Salem and IIM Salem Chapter.

**List of presentations in international (15) /national (05) conferences:**

1. *Hot model simulation of mould phenomena during continuous casting of liquid steel*: Ashok Kamaraj<sup>#</sup>, Nimai Haldar, Premkumar M, and S. Misra: in an international conference on Recent Trends in Metallurgy, Materials science and Manufacturing [IMME-2019], National Institute of Technology, Trichy during 27-28<sup>th</sup> Dec 2019. **(Best Paper award)**
2. *Indigenous development of cannon liner steel for explosive testing*: Ashok Kamaraj<sup>#</sup>, S Tripathy, Murugesan A.P, G. K. Mandal, V. C. Srivastava and R. R. Singh: National Metallurgist Day (NMD) – Annual technical Meeting (ATM), organized by Indian Institute of Metals, Trivandrum Chapter, Trivandrum 13-16<sup>th</sup> Nov 2019.
3. *Physical Simulation of Initial Solidification behaviour during Continuous Casting of Liquid Steel*: Ashok Kamaraj<sup>#</sup>, N. Haldar, G. Chalavadi, S. Misra, P. P. Sahoo: National Metallurgist Day (NMD) – Annual technical Meeting (ATM), organized by Indian Institute of Metals, Trivandrum Chapter, Trivandrum 13-16<sup>th</sup> Nov 2019.
4. *Glimpses of research on clean steel practices at CSIR-NML*: Ashok Kamaraj<sup>#</sup>: International seminar on Innovative Technologies for Production and Processing of Iron & Steel to remain Competitive & Sustainable, organized by Steel Tech, Kolkata on 19<sup>th</sup> Sep 2019.
5. *High Temperature Simulation of Continuous Casting Mould Phenomena*: Ashok Kamaraj<sup>#</sup>, Nimai Haldar, Premkumar Murugaiyan, and Siddhartha Misra: National conference on Advances in Process Metallurgy organized by Indian Institute of Science Bangalore during 4-5<sup>th</sup> July 2019.

6. [Control of Slag Carryover from BOF Vessel during Tapping: BOF Cold Model Studies](#): Ashok Kamaraj<sup>#</sup>, G.K. Mandal, G G Roy: 10<sup>th</sup> international conference on clean steel, organized by Hungarian mining and metallurgical society, Budapest during 18-20 Sep 2018.
7. [Ashok Kamaraj<sup>#</sup>, Kotta Navya, G G Roy, G K Mandal, "Modelling and simulation studies on Liquid Steel Transfer Operations"](#) in an international conference on Asia Steel [2018], organized by Tata Steel Ltd and Indian Institute of Metals, Bhubaneswar.
8. [Ashok Kamaraj<sup>#</sup>, Sushil Kumar, G G Roy, G K Mandal, "Quantitative and Qualitative Analysis of Non-metallic Inclusions in Low Alloy Steel"](#) in an international conference on Asia Steel [2018], organized by Tata Steel Ltd and Indian Institute of Metals, Bhubaneswar.
9. [Ashok Kamaraj<sup>#</sup>, G G Roy, G K Mandal, "Modelling and simulation studies on BOF Tapping Process"](#) in an international conference on Science and Technology of Ironmaking and Steelmaking [STIS-2017], Indian Institute of Technology, Kanpur.
10. [Ashok Kamaraj<sup>#</sup>, R Saravanakumar, M Rajaguru, "State of the Art Control Measures for Aluminium Fade and SEN Clogging during Steelmaking Operations"](#) in an international conference on Advances in Metallurgy, Materials and Manufacturing [ICAMMM-2017], Government College of Engineering, Salem.
11. [Ashok K<sup>#</sup>, G. G. Roy, G. K. Mandal, "Estimation and analysis of excess oxygen input into ladle during liquid steel tapping"](#) in an international conference on Emerging Trends in Materials and Manufacturing Engineering [IMME-2017], National Institute of Technology, Trichy. **(Best Paper award)**
12. Chidambaram S<sup>#</sup>, [Ashok K, "Failure Investigation of industrial crank shaft made of cast iron"](#) in an international conference on Advances in Metallurgy, Materials and Manufacturing [ICAMMM-2017], Government College of Engineering, Salem.
13. Chidambaram S<sup>#</sup>, [Ashok K, "Shear Fracture and Industrial Overload Failure of Mechanical Fuse Shear Pin"](#) in an international conference on Advances in Metallurgy, Materials and Manufacturing [ICAMMM-2017], Government College of Engineering, Salem.
14. [Ashok K<sup>#</sup>, G G Roy, G K Mandal, "Physical Modelling Investigation on Vorticity Dynamics During Liquid Steel Tapping"](#) in an international conference on Advances in Metallurgy, Materials and Manufacturing [ICAMMM-2017], Government College of Engineering, Salem. **(Best Paper award)**
15. [Ashok Kamaraj<sup>#</sup>, Sarbeswar Thattoi "An Alternative Secondary Steelmaking Reactor – A Preliminary Investigation"](#) in a national conference on Role of Innovations in Indian Mineral, Metals, Manufacturing, Processing & Allied Industries -2016, Indian Institute of Metals, Kolkata.
16. [Ashok Kamaraj<sup>#</sup>, "Clean steel practices in steelmaking operations"](#) in a national conference on Quality Management Standards & Quality Management Tools (QMS & QTT-2016), MSME, Giridih Chapter.
17. [Ashok K<sup>#</sup>, Venkatesan J, P G Venkatakrishnan, "Quantification of Slag Carry Over & Its Effect on Melting Practice of Medium Carbon Re-sulphur Steel Grades"](#) in an international Conference on Science and Technology of Iron making and Steelmaking [STIS-2013], CSIR-NML Jamshedpur.
18. [Ashok K<sup>#</sup>, Sankar p, Maruthupandian K, P G Venkatakrishnan "Process Evaluation of AOD Stainless Steel Making in Salem Steel Plant, SAIL"](#) in an International Conference on Science and Technology of Iron making and Steelmaking [STIS-2013], CSIR-NML Jamshedpur.
19. [Ashok K<sup>#</sup>, P G Venkatakrishnan, "Formation of Alumina Inclusion and their Control Measures"](#) in an International Conference on Recent Advancement in Material Processing [RAMP-2011], PSG College of Technology, Coimbatore.

20. Ashok K<sup>#</sup>, Premkumar M, Ganesh Kumar K, P G Venkatakrishnan “[\*Inclusion Prediction and Evaluation of carbon Removal Efficiency in AOD Stainless Steel Making\*](#)” in an International Conference on Recent Advancement in Material Processing [RAMP-2011], PSG College of Technology, Coimbatore.

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