

## Brief Bio-data

1. Name : Dr. Prakash Dhondiram Chavan  
 2. Date of Birth : 10.07.1974  
 3. Current Position & Address: Sr. Pr. Scientist, Gasification & Catalysis Res. Group, CIMFR (DC), PO-FRI, Digwadhi, Dhanbad-828108  
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### 4. Educational Qualifications (Graduation and above)

Sl.	Degree	Year of Passing	University/Institute	Subject
1	B. E. Chemical	1996	Shivaji University, Kolhapur	Chemical Engineering
2	Ph.D. Gasification	2013	IIT-ISM, Dhanbad	Gasification

### 5. Work experience:

Designation	Institute/company	From	To	Nature of work (R&D)
Sr. Pr. Scientist	CIMFR (DC), Dhanbad	1 <sup>st</sup> Mar 2016	Till Date	<ul style="list-style-type: none"> <li>• R&amp;D in the area of coal/biomass gasification, coal to liquid.</li> <li>• Development of pilot/bench scale gasification facilities.</li> <li>• Participation in gasification programs of GoI under the leadership of NITI Aayog, MoC, CIL &amp; TFL.</li> </ul>
Pr. Scientist	CIMFR (DC), Dhanbad	1 <sup>st</sup> Mar 2012	29 <sup>th</sup> Feb 2016	
Sr. Scientist	CIMFR (DC), Dhanbad	1 <sup>st</sup> Mar 2008	29 <sup>th</sup> Feb 2012	
Scientist	CIMFR (DC), Dhanbad	1 <sup>st</sup> Mar 2002	29 <sup>th</sup> Feb 2008	
Shift-In-charge	Harnil Techno Cons, Nasik	Sept. 1999	Feb. 2002	Installation, operation & maintenance of hazardous chemicals incineration system.
Process Engineer	Deepak Nitrite (Aryan), Roha	Mar. 1999	Aug. 1999	Installation, operation of Hydrogenation & distillation for chemical intermediates.
Chemical Engineer	Diam Org. Chem. Ind. (P) Ltd, Mahad	Jan. 1997	Feb. 1999	Production of glycol ethers using ethylene oxide & ethanol & fractional Distillation.

**6. Work Area(s)/Specialization:** Coal/Biomass Gasification, Fluidized Bed Pilot Plant development, Support to gasification industries to address operational issues & increase gasifier performance, Feasibility/prefeasibility studies in the area of gasification, Representing Methanol Economy program of GoI.

### 7. Major contributions: (Max. 100 words)

- Development of 1.5 TPD Oxy-blown PFBG pilot plant for high ash coal/biomass.
- Development of 0.5 TPD Air-blown electrically heated PFBG pilot Plant.
- Design and development of Thermo-gravimetric Reactor to study gasification reactivity & kinetics of lump, granular and powdered fuels.
- Gasification Potential Mapping of Indian coal resource under the aegis of NITI Aayog & suggested matching gasification technology and utilization strategies.
- Represents CSIR-CIMFR in the Methanol Economy Task Force (NITI Aayog), Technical Expert for Talcher Fertilizer Limited, Technical Standing Group for Indian Coal Gasification (NITI Aayog) & *Resource Group for Gasification* under MoC.
- Prefeasibility/feasibility studies in the area of gasification for different organizations.

### 8. No. of Research Publications:

- Papers in Journals : 22
- In conference proceedings : 17
- Invited lectures delivered : 8
- Books/Chapters authored/edited : 2

### List of best 05 publications :

- Development of data-driven models for fluidized-bed coal gasification process, Fuel, 93, March 2012, 44–51.
- Gasification of High Ash Indian Coal in Fluidized Bed Gasifier & its AI based Modeling, Ind. Eng. Chem. Res., 53(49), 18678–18689, 2014.

- Modeling & simulation of gasification of Indian coal in BFBG using Eulerian Granular Approach, *Int. Jr. of Chemical Reactor Engg*, 2015.
- Co-gasification of coal & biomass an emerging clean energy technology: status and prospects of development in Indian context, *Int. Journal of Mining Science & Technology*. Vol29, Issue2, Mar 2019, 171-186
- Petro-graphic & chemical reactivity assessment of Indian high ash coal with different biomass in fluidized bed co-gasification, *Journal of the Energy Institute*. 92 (2019) 982-1004

#### **9. List of 5 Major Contract R & D Projects:**

- Development of Oxygen Enriched Air-blown PFBG (Under aegis of NITI Aayog)
- Gasification Potential Mapping of Indian Coal & Utilization Strategy (NITI Aayog)
- Study on Multi-feed gasification performance of high ash coal, biomass & MSW blends in the existing PFBG (DRDO-VRDE)
- Feasibility study on coal Gasification project for JSW Steel Ltd, Bellary
- Pre-feasibility study on Coal gasification to supplement NG (GSPC, Gujarat)

#### **10. (a) Name of Patents/Copyrights applied/granted/commercialized:**

**Patents: Granted in India:2, Filed in India:3**

- Oxygen Enriched Air-blown PFBG Pilot Scale Test Facility for high ash coal, biomass & blends (INDIAN PATENT APP. NO. 0090NF2021)
- Air-blown PFBG Pilot Scale Test Facility with external heating for high ash coal, biomass, rejects & blends (Application No. 201811014119)
- Development of Thermo-gravimetric Reactor (TGR) to study weight changes and process thereof (Application No. 202111001133)
- System & process for conversion of heavy oil into lighters (Patent no. 334687)
- Development of 'reconstituted coal-water emulsion' as clean coal technology for power generation. (Patent Filing No. 0219 NF 2008)

**Copyrights: Registered: 3**

- Selection Matrix: Physico-chemical properties of Solid Fuels vis-a-vis Suitable Type of Gasifier, CSIR No. 004CR2020.
- High Ash Indian Coals: Gasification Strategy, CSIR No. 017CR2020
- Coal Characterization Matrix to evaluate Gasification Potentiality, (012CR2020).

**(b) Technologies/Products/Knowhow/Services developed: 5**

- Oxygen Enriched Air-blown PFBG Pilot Scale Test Facility
- Air-blown PFBG Pilot Scale Test Facility with external heating
- Development of Thermo-gravimetric Reactor (TGR)
- Process for conversion of heavy oil into lighter fractions
- Development of 'reconstituted coal-water emulsion'.

#### **11. Honours/Awards/Recognitions/Fellowships/Scholarships/Professional**

- Representing CSIR-CIMFR as a Member organization of NITI Aayog Methanol Economy Task Forces: (23/05/2017)
- Member of Technical Expert Committee for TFL: (14/06/2018).
- Representing CSIR-CIMFR as a Member of Technical Standing Group for Indian Coal Gasification Mission under NITI Aayog, GoI: (8/05/2020).
- Co-ordinator for Ministry of Coal Resource Group: (3/07/2020).
- Life Member of Indian Institute of Mineral Engineers. Membership No. LM-1089
- Life Member of Mining Engineers' Association of India

**12. Societal Contributions:** Industrial Training and support for Academic Project for B.Tech, M.Tech, and PhD students of different organization.