

Dr. Rahul Bhatia

Senior Research Scientist, Energy Materials

Pune, India | +91 98220 55667 | rahul.bhatia@email.com | linkedin.com/in/rahulbhatia

PROFILE

Materials scientist with 10 years in battery and energy-storage research across academia and industry. I take new materials from discovery to pilot-scale production, with 6 granted patents.

EDUCATION

- | | |
|--|-------------|
| Ph.D., Materials Science
<i>Hollins Institute of Technology</i>
Thesis: Interfaces in solid-state lithium batteries | 2012 – 2017 |
| M.Tech., Metallurgical Engineering
<i>Northern Institute of Engineering & Technology</i> | 2010 – 2012 |
| B.Tech., Chemical Engineering
<i>Deccan Valley University</i> | 2006 – 2010 |

RESEARCH EXPERIENCE

- | | |
|--|----------------|
| Senior Research Scientist
<i>Greenfield Energy Labs</i> <ul style="list-style-type: none">Lead a 12-person team developing sodium-ion cathodes; scaled synthesis from 10 g to 50 kg batches.Own a ₹15 crore research budget and partnerships with two universities. | 2021 – Present |
| Research Scientist
<i>Kestrel Materials</i> <ul style="list-style-type: none">Developed a recyclable binder now used in two commercial cell formats.Filed 8 patent applications, 6 granted. | 2017 – 2021 |
| Graduate Researcher
<i>Hollins Institute of Technology</i> <ul style="list-style-type: none">Designed interfacial coatings that tripled cycle life of solid-state cells. | 2012 – 2017 |

PUBLICATIONS

- Fischer, A., Gupta, R., & **Bhatia, R.** (2026). Designing for catalysts for green hydrogen. *International Conference on Battery Materials*, pp. 253–265.
- Fischer, A., **Bhatia, R.**, & Rao, S. (2026). Rethinking recyclable battery binders. *Surface Science Reports*, 14(11), 646–666.
- Gupta, R., Iyer, M., **Bhatia, R.**, & Okafor, D. (2026). Measuring recyclable battery binders. *Journal of Advanced Functional Materials*, 14(5), 23–32.
- Okafor, D., **Bhatia, R.**, & Menon, V. (2025). Understanding perovskite solar cell stability. *International Conference on Battery Materials*, pp. 307–315.
- Bhatia, R.**, & Sato, Y. (2025). Understanding perovskite solar cell stability. *Materials Chemistry Letters*, 48(12), 534–545.
- Sato, Y., Kim, J., & **Bhatia, R.** (2025). Scaling recyclable battery binders. *Energy Storage Science*, 29(10), 742–764.

- Okafor, D., Gupta, R., Kim, J., & **Bhatia, R.** (2024). Revisiting self-healing polymer coatings. *Journal of Advanced Functional Materials*, 26(3), 581–594.
- Haddad, N., & **Bhatia, R.** (2024). Scaling sodium-ion cathode design. *Journal of Advanced Functional Materials*, 41(5), 551–569.
- Bhatia, R.**, Okafor, D., & Banerjee, P. (2024). Evidence on thermal management films. *Energy Storage Science*, 19(11), 874–885.
- Sato, Y., **Bhatia, R.**, & Banerjee, P. (2023). Revisiting solid-state electrolytes for lithium batteries. *Surface Science Reports*, 20(7), 473–494.
- Kim, J., Gupta, R., & **Bhatia, R.** (2023). Designing for recyclable battery binders. *International Conference on Battery Materials*, pp. 290–302.
- Bhatia, R.**, Chen, L., & Sato, Y. (2023). A study of self-healing polymer coatings. *Surface Science Reports*, 11(5), 147–163.
- Menon, V., Banerjee, P., Gupta, R., & **Bhatia, R.** (2022). Designing for thermal management films. *Energy Storage Science*, 24(8), 50–61.
- Haddad, N., Kim, J., & **Bhatia, R.** (2022). Scaling sodium-ion cathode design. *Materials Chemistry Letters*, 44(6), 42–51.
- Bhatia, R.**, Iyer, M., & Banerjee, P. (2022). Measuring sodium-ion cathode design. *Journal of Advanced Functional Materials*, 7(2), 117–136.
- Mensah, K., Rao, S., **Bhatia, R.**, & Okafor, D. (2021). Designing for recyclable battery binders. *Journal of Advanced Functional Materials*, 5(3), 366–388.
- Mensah, K., & **Bhatia, R.** (2021). Designing for self-healing polymer coatings. *Surface Science Reports*, 12(6), 334–356.
- Haddad, N., **Bhatia, R.**, Rao, S., & Chen, L. (2021). Towards sodium-ion cathode design. *Journal of Advanced Functional Materials*, 33(6), 20–39.
- Bhatia, R.**, & Chen, L. (2020). Understanding solid-state electrolytes for lithium batteries. *International Conference on Battery Materials*, pp. 416–427.
- Sato, Y., **Bhatia, R.**, Kim, J., & Okafor, D. (2020). Measuring recyclable battery binders. *Surface Science Reports*, 47(9), 391–402.

PATENTS

- Bhatia, R., et al. Cathode composition for sodium-ion cells. Patent granted (2024).
- Bhatia, R., & Rao, S. Aqueous recyclable binder for electrodes. Patent granted (2022).
- Bhatia, R. Coated solid electrolyte particles. Patent granted (2021).

CONFERENCE PRESENTATIONS & INVITED TALKS

- Invited talk: “Scaling thermal management films”, Materials Chemistry Letters, London, 2026.
- Invited talk: “Designing for catalysts for green hydrogen”, Materials Chemistry Letters, Melbourne, 2026.
- Seminar: “Revisiting catalysts for green hydrogen”, International Conference on Battery Materials, Hyderabad, 2025.
- Invited talk: “Revisiting perovskite solar cell stability”, Energy Storage Science, New Delhi, 2025.
- Seminar: “Towards sodium-ion cathode design”, International Conference on Battery Materials, Singapore, 2024.
- Keynote: “A study of thermal management films”, Materials Chemistry Letters, Melbourne, 2024.
- Seminar: “Towards thermal management films”, Symposium on Advanced Functional Materials, Boston, 2023.

TEACHING

- Adjunct faculty, Battery Materials (elective), Deccan Valley University (2022–present)
- Supervised 5 M.Tech. theses and 2 Ph.D. co-supervisions

GRANTS, AWARDS & HONOURS

- Industry–Academia Research Grant, national energy mission (2023), ₹4.5 crore (co-PI)
- Young Innovator Award, battery materials society (2020)
- Doctoral Fellowship, Hollins Institute (2012–2017)

PROFESSIONAL SERVICE

- Editorial board member, Energy Storage Science (2024–present)
- Session chair, International Conference on Battery Materials (2023, 2025)

SKILLS

Characterisation: XRD, SEM/TEM, XPS, impedance spectroscopy, cycling analysis

Process: Slurry design, coating, pilot-line scale-up, DoE

Software: Python, Origin, COMSOL

Languages: English, Hindi, Punjabi

REFERENCES

Dr. M. Iyer

Director of Research, Greenfield Energy Labs
m.iyer@company.example

Prof. J. Kim

Professor, Hollins Institute of Technology
j.kim@university.edu