YANG YANG, PH.D.

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WORK EXPERIENCE

TRATON Group (formerly Scania) Södertälje, Sweden

Researcher – Battery Safety November 2021 – Present

- Led safety testing in pre-development with a focus on thermal runaway for 46xx cylindrical cells.
- Simulate thermal runaways and thermal propagation with computational 3D modeling.
- Pioneered cost-effective methods for battery thermal runaway analysis and multidimensional safety evaluation.
- Developed numerical model of heat flow during thermal runaway propagation, proposed strategic cooling solutions.

Test Engineer for Engine Valve System August 2019 – November 2021

- Specified valve components for durability testing, including valves, valve seat inserts, valve guides, valve springs and valve stem seals, inspected valve parts after test, maintained requirements for quality validation.
- Led RCA of part failures from testing and customer feedback, coordinating engine disassembly, wear measurement, lab tests, and technical meetings.
- Established database to archive field and engine test data, contributed to the nomination of valve components.

Master Thesis Intern - Materials Technology February 2019 – August 2019

- Measured residual stresses with non- and semi-destructive techniques in cast components with complex geometries.
- Compared measurement techniques with computational simulations to validate residual stress analysis.

EDUCATION

Uppsala University – Ångström Laboratory Uppsala, Sweden

Ph.D. Materials Chemistry, specializing in Li-ion battery safety December 2021 – November 2025

KTH Royal Institute of Technology Stockholm, Sweden

M.Sc. Engineering Materials Science August 2017 – August 2019

Technical University of Munich Munich, Germany

Exchange M.Sc. Mechanical Engineering September 2018 – March 2019

Soochow University Suzhou, China

B.Eng. Metallic Materials Engineering August 2013 – June 2017

CONFERENCE PRESENTATIONS

International Meeting on Lithium Batteries (IMLB) Hong Kong

A Cost-effective Method of Analyzing Thermal Runaways of Li-ion Battery through Thermocouples June 2024

Batteris Sweden (BASE) Annual Meeting Uppsala, Sweden

Battery Safety Testing and Characterization with Multidimensional Sensors April 2024

Nordic International Seminar for Materials Process Helsinki, Finland

3D Investigation of Nonmetallic Inclusion Morphology in Steel using Electrolytic Extraction November 2018

SKILLS & PROFICIENCIES

Computer: Microsoft Office, Python, MATLAB, COMSOL Multiphysics
Technical skills: Agile Development (JIRA), Root Cause Analysis (RCA), Data Analysis
Languages: English (professional), Chinese (native), Swedish (conversational), Cantonese (proficient), German (basic)

PATENT

[1] Yang Yang, David Raymand, Carl Tengstedt, and Jimmy Pham. "An innovative solution for thermal propagation" *Patent- och Registreringsverket*

PUBLICATIONS & ACADEMIC SERVICE

Publications

[1] **Yang Yang**, et al. "A cost-effective alternative to accelerating rate calorimetry: Analyzing thermal runaways of lithium-ion batteries through thermocouples." *Journal of Power Sources* 612 (2024): 234807.

[2] **Yang Yang**, et al. "Investigating the effect of packing format on $LiNi_xCo_yMn_zO_2$ lithium-ion battery failure behavior based on multidimensional signals." *Journal of Power Sources* 614 (2024): 234994.

[3] Ola Willstrand, **Yang Yang**, et al. "Lab-scale versus industrial-scale thermal runaway tests for lithium-ion battery cells." *Journal of Energy Storage* 129 (2025): 117275.

[4] **Yang Yang**, et al. "Modeling the Interplay between Aging and Thermal Runaway Propagation in Large-format Lithium-Ion Batteries." *Journal of Power Sources Advances* 38 (2026): 100203.

[5] Kuijie Li, Li Wang, **Yang Yang**, et al. "Investigation on Feasibility of Expansion Force as Early Warning Signal for Safety Failure of Batteries Under Common Trigger Scenarios" *eTransportation* (submitted: ETRAN-D-24-00338)

[6] **Yang Yang**, et al. "Mapping Heat Flow in Prismatic Battery Modules During Thermal Runaway Propagation Using Empirical Data" *Batteries & Supercaps*

[7] **Yang Yang**. "Thermal Runaway in Large-Format Lithium-Ion Batteries: Experimental, Diagnostic, and Modeling Approaches for Safer Battery Design." PhD diss., Acta Universitatis Upsaliensis, 2025.

Academic Service

- Peer reviewer: *Journal of Power Sources*; *Journal of Power Sources Advances*; *Energy Storage Materials* (Elsevier)
- Supervise Master's thesis on Safety Characterization of Li-ion Batteries
- Guest lecturer on M.Sc. Renewable Electricity Production, Uppsala University