



**Professor Jun Xu**

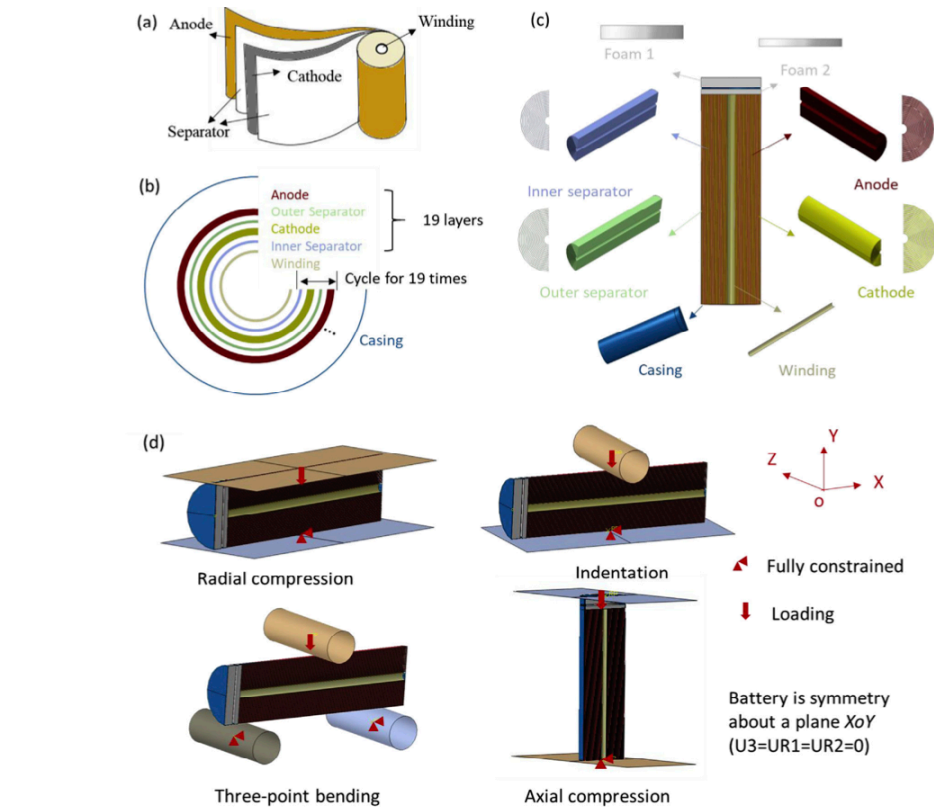


Fig. 1. Schematic geometry of the target cylindrical lithium-ion battery. (a) Macroscopic structure of the jellyroll without battery casing, (b) the concentric-circle structure of battery cell from top view, and (c) exploded view of components and their assembly. (d) Boundary-condition setups under different loading conditions for computational models (where  $U_3$ ,  $UR_1$  and  $UR_2$  stand for the displacement in Z-direction, rotation in X-direction, and rotation in Y-direction, respectively).

From: Lubing Wang, Sha Yin and Jun Xu, “A detailed computational model for cylindrical lithium-ion batteries under mechanical loading: From cell deformation to short-circuit onset”, Journal of power Sources, Vol 413, pp 284-292, 2019

See:

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**Summary:**

Dr. Jun Xu now serves as a full professor in the Department of Automotive Engineering, Beihang University. His group explores highly nonlinear mechanical and multiphysics problems targeting at automotive industry problems (crashworthiness and lightweight) by using mechanics as a fundamental tool. More details could be found at ([www.avrcgroup.com](http://www.avrcgroup.com))

**Selected Publications:**

- Xu J, Li YB, Chen X, Ge DY, Liu BH, Zhu MY, Park TH: Automotive windshield - pedestrian head impact: energy absorption capability of interlayer material. Int J Auto Tech-Kor 2011, 12:687–695.
- Xu J, Xu B, Sun Y, Li Y, Chen X: Mechanical energy absorption characteristics of hollow and water-filled carbon nanotubes upon low speed crushing. J Nanomechanics Micromechanics 2012, 2:65–70.
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Xiang Gao, Chunhao Yuan and Jun Xu, "Dynamic behaviour of core-shell structured Si nanoparticles during lithiation/delithiation cycling at dynamic loadings", *EPJ Web of Conferences*, Vol. 183, 01018 (DYMAT 2018), 2018

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Wen Zhang, Sha Yin, T.X. Yu and Jun Xu, "Crushing resistance and energy absorption of pomelo peel inspired hierarchical honeycomb", *International Journal of Impact Engineering*, Vol. 125, pp 163-172, March 2019

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Sha Yin, Dianhao Chen and Jun Xu, "Novel propagation behavior of impact stress wave in one-dimensional hollow spherical structures", *International Journal of Impact Engineering*, Vol. 134, Article 103368, December 2019

Sha Yin, Huitian Wang, Jianxing Hu, Yaobo Wu, Yongbin Wang, Shinqing Wu and Jun Xu, "Fabrication and anti-crushing performance of hollow honeytubes", *Composites Part B: Engineering*, Vol. 179, Article 107522, 15 December 2019