Response to Reviewer 1 Comments

Reviewer #1: There are some questions not answered by the authors, are the next:

Point 1: Explain the contributions of your work.

Response 1: In order to obtain tough natural rubber latex products, we report an eco-friendly and facile core-shell structure construction strategy by self-assembly between modified sodium lignosulfonate (MSLS) and natural rubber latex (NRL) to create double network-based membrane with super strength and high damage tolerance. Specifically, the first robust network, which is constructed by polyamide epichlorohydrin resin (PAE) and MSLS, can break in advance to dissipate applied energy, thereby achieving high tensile strength of ~37 MPa and fracture energy of ~111.51 kJ m^{-2} that overtakes many soft materials (generally less than 100 kJ m^{-2}). Our exploration on self-assembly and construction of double network will guide the community to rationalize the design and fabrication of high-performance membrane.

Point 2: Conclusions must be redone, are weak and very summarized. Explain the reason why the samples change with the presence of PAE.

Response 2: Thank you for your professional comment. We have revised the conclusions as shown on page 11.

Point 3: On the other hand, in line 211 "it is found from the obtained molecular electrostatic potential image (Figure 2e)" please summarize how you can define the electrostatic process and how you have simulated and graphed the Figure 2e.

Response 3: Thanks for your useful comment. As can be found in Figure S2, the simulated structure was optimized on the level of ωB97X-D/6-31g**. After optimization, the contrast of charge density on the whole structure can be automatically obtained from the Surface and Cubes function module of GaussView software. The double bond is relatively electron deficient when compared to the benzene ring, the electrostatic interaction therefore may be generated among benzene ring and 1-methyl-2-pentene and simulated MSLS structure. According to your suggestion, we have expanded related description in the manuscript, please refer to Line 211-222.