Electronic Supplementary Material (ESI) for Soft Matter.
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Supplementary Information

A solution-processable and highly flexible conductor of fluoroelastomer FKM and carbon nanotube with tuned electrical conductivity and mechanical performance

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Crosslinking degree

The crosslink densities of the neat FKM samples were characterized by swelling analysis (ASTM D2765). The vulcanized samples prepared by different processing methods including homogenization (H), bath ultrasonication (BU) and combination of H and BU process, were soaked in acetone for 24 h and dried in an oven at 110°C for 2 hrs. The degree of crosslinking was calculated according to equation (1):

$$\alpha = \frac{W1}{W2} \times 100\% \quad (1)$$

where α is the degree of crosslinking and W_1 and W_2 are the weights of the testing specimen before and after extraction respectively. **Fig. S1** shows the results of crosslinking agent degree for different process.

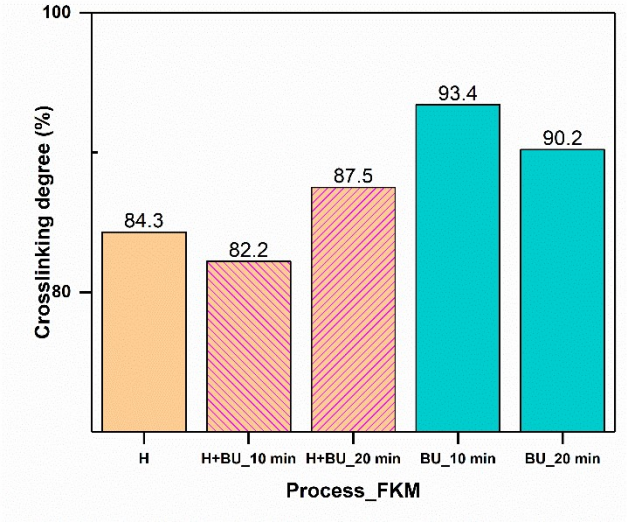

Fig. S1. Crosslinking degree comparison in different processing methods of FKM and crosslinking agents' solution including homogenization (H), bathultrasonication (BU) and combination of H and BU process.

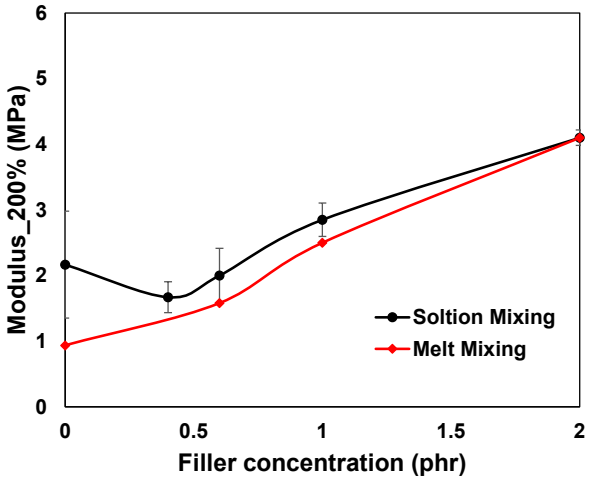

Fig. S2. A comparison of tensile modulus at 200% strain for solution mixing (SM) and melt mixing (MM) process for CNT/FKM nanocomposites