Supplementary Information

1 High-Temperature Energy Storage Performance of BOPP Film[8]

Tab.1-1 Maximum Discharge Energy Density of BOPP Film (η > 90%)

Temperature(°C)	BOPP(J/cm³)	Modified Laminated BOPP Structure(J/cm³)
25	3.9-4.1	4.6-5.0
75	1.5-1.7	3.6-4.0
100	0.8-1.0	3.7-3.9
125	0.08	1.5-1.7

2 Specific Parameters of the Weibull Distribution for Breakdown Strength and Flashover Voltage

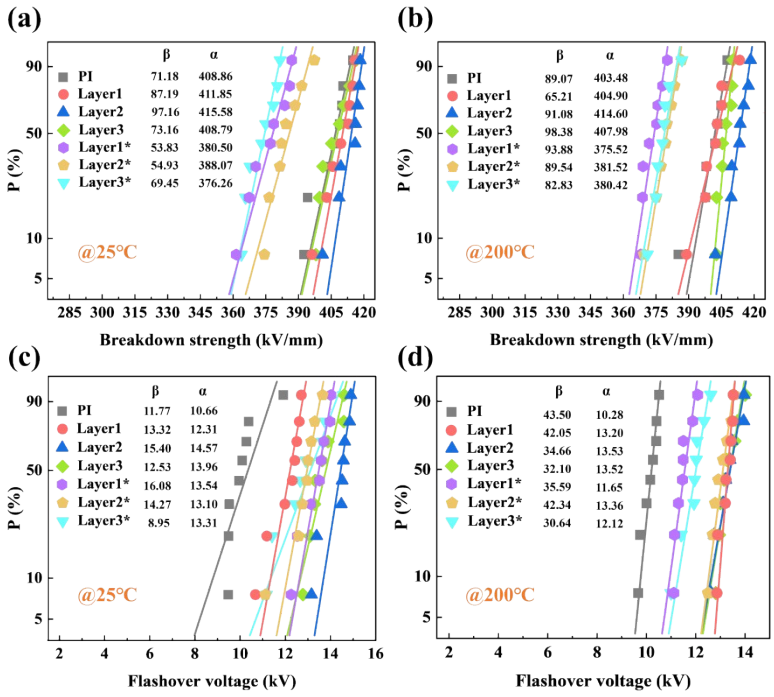

Fig. 2-1 (a, b) Breakdown strength at 25° C and 200° C; (c, d) Flashover voltage at 25° C and 200° C.

3 Peak-Fitting Results for the Trap-Level Distributions of the Sample Groups

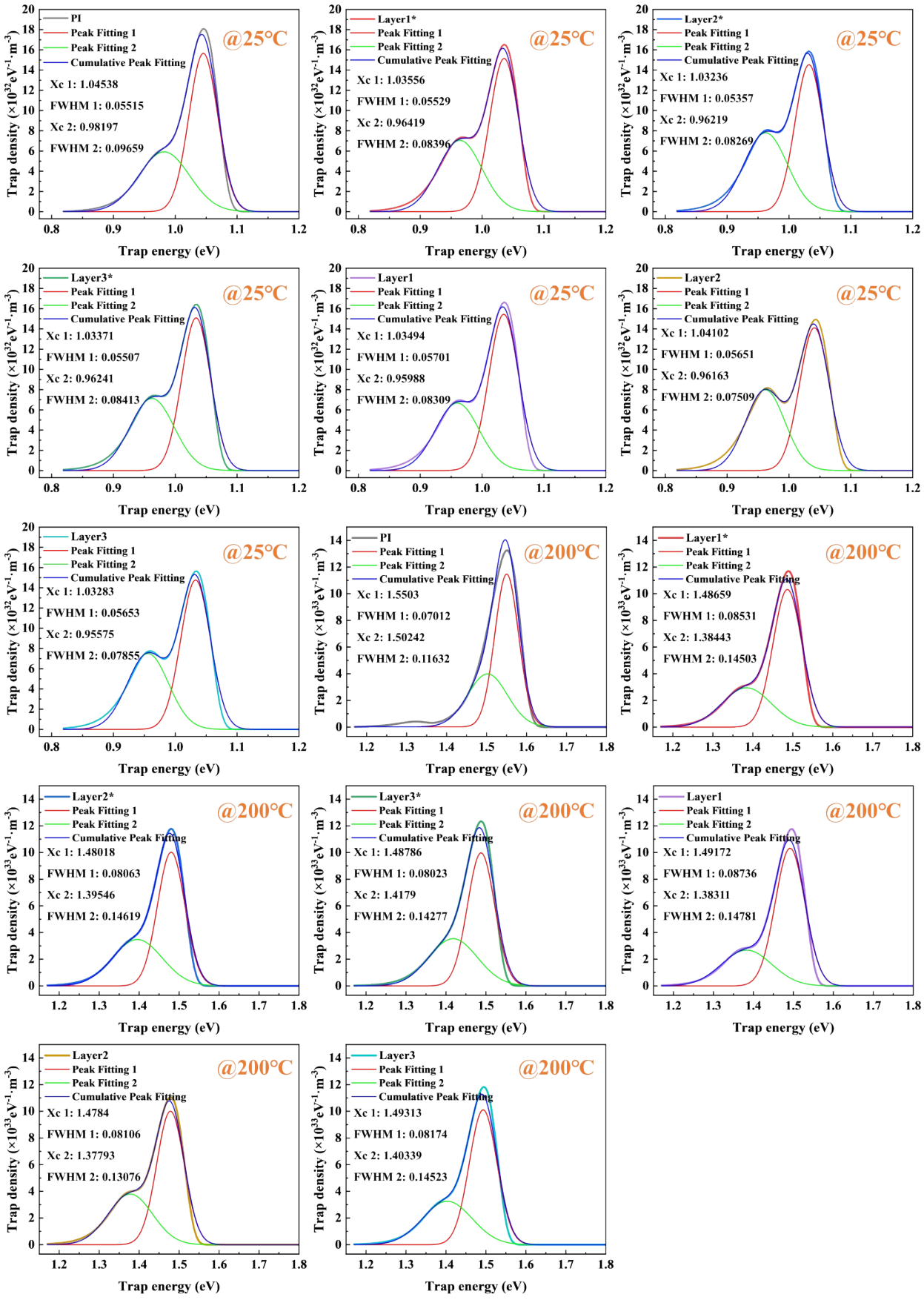

Fig. 3-1

4 Hysteresis Loops of Various Samples under Different Electric Field Strengths

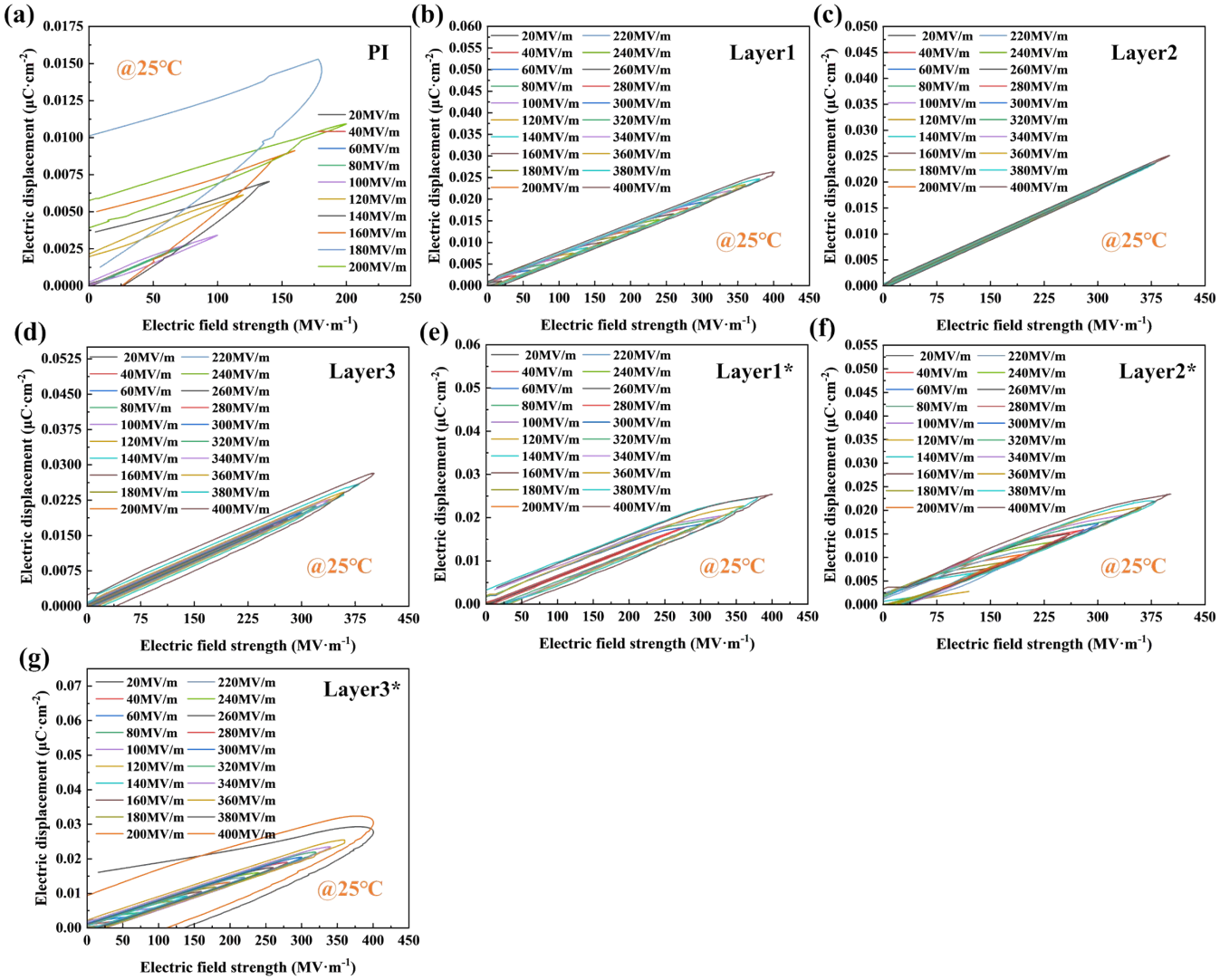

Fig. 4-1 25°C

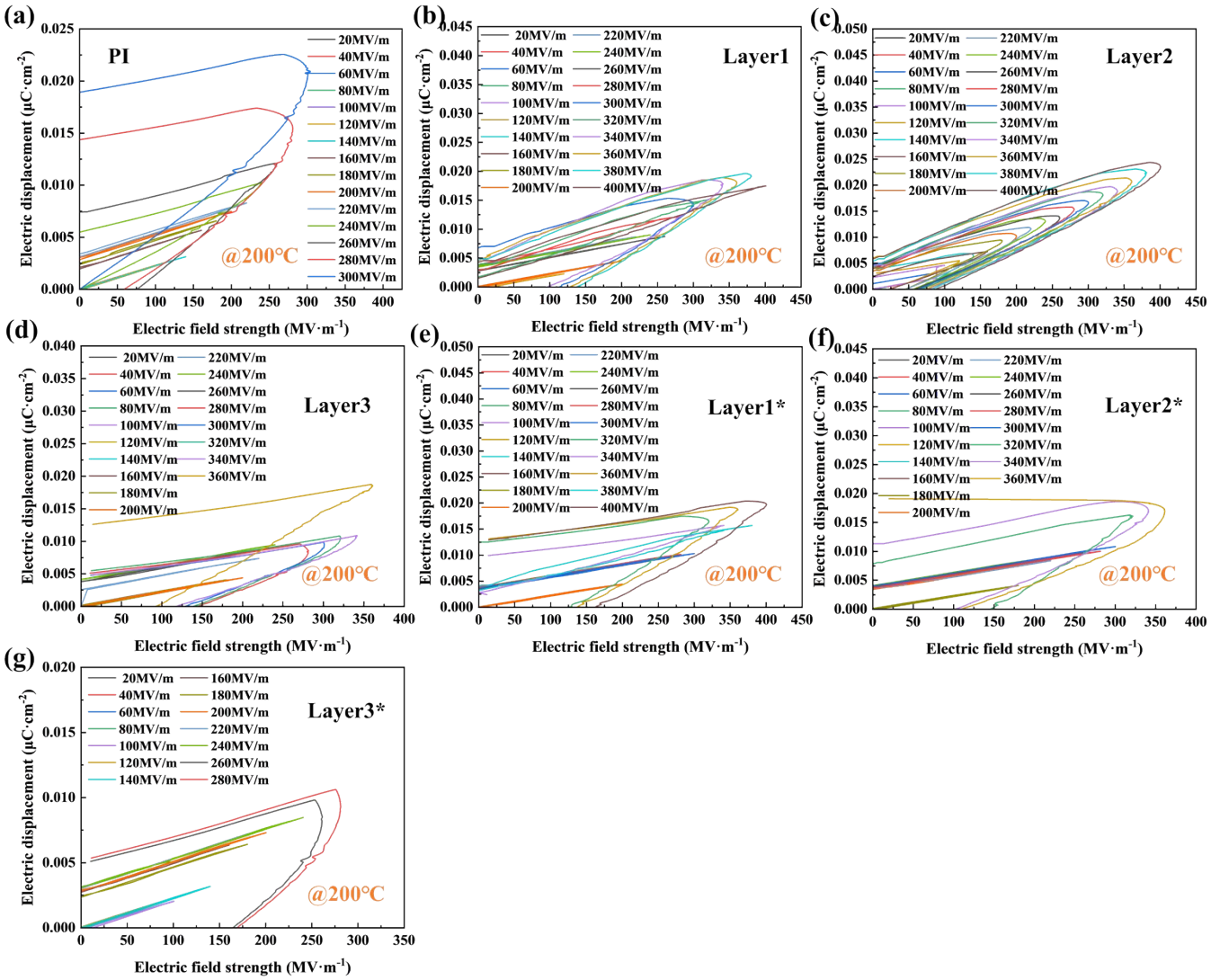

Fig. 4-2 200℃

5 Fatigue Testing

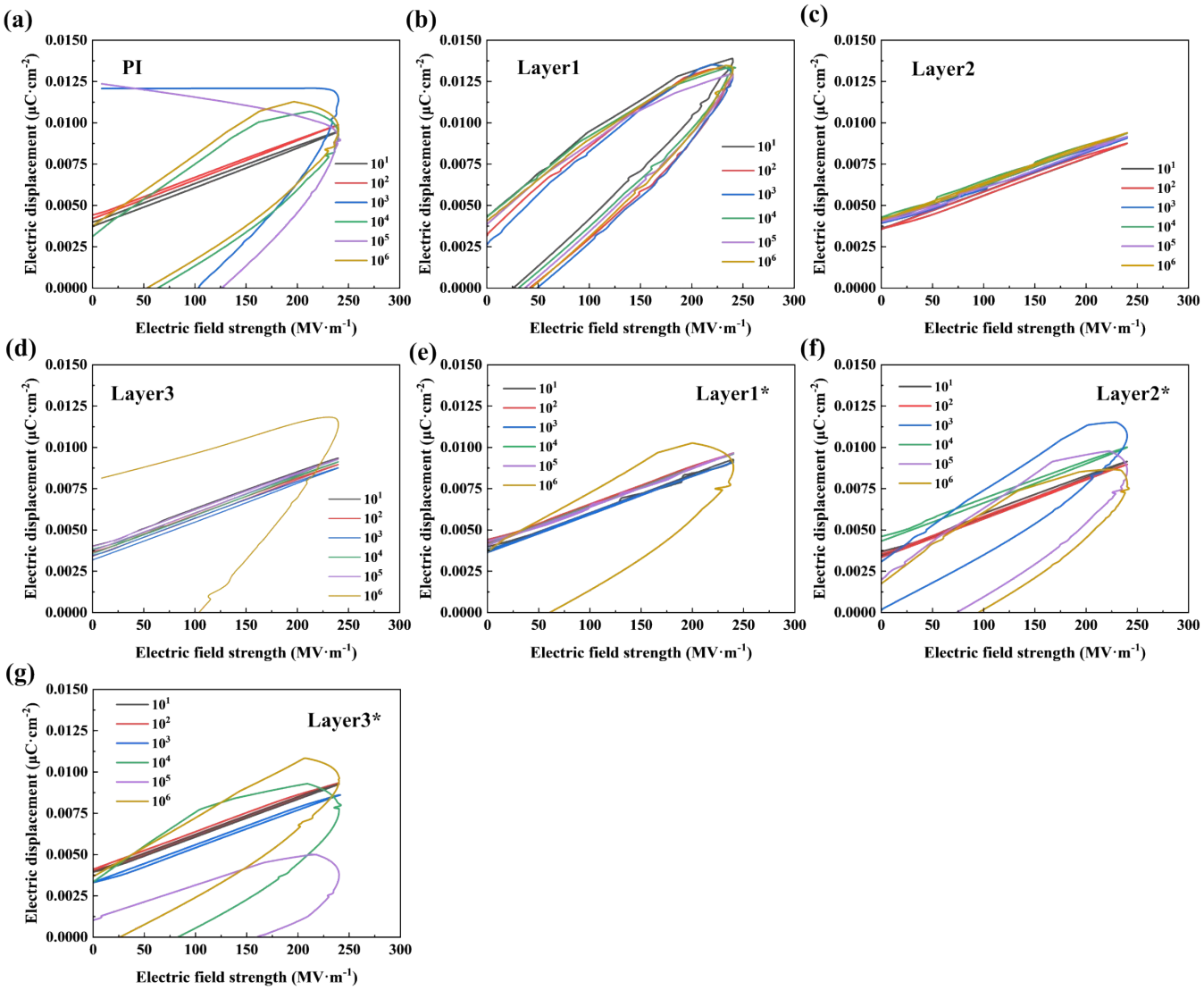

Fig. 5-1

6 This paper employs the ***Materials Studio*** software to perform simulation calculations on plasma-treated PI molecules, the interfacial phase molecules formed with DGEBA, and the BST@S core-shell structure; the relevant calculation modules and molecular models are presented below.

6.1 Construction of Models for Potential Structures and Functional Group Grafting Sites of PI Molecules Following Plasma Oxidation

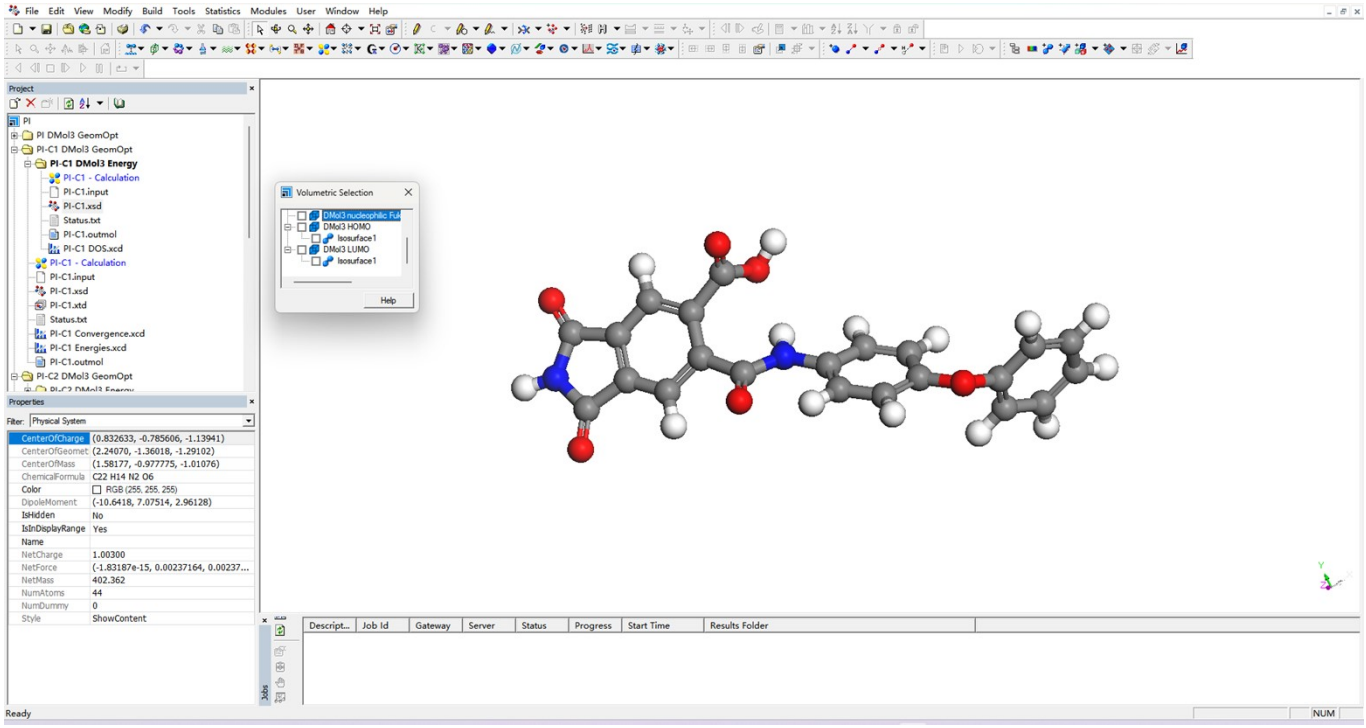

Fig. 6-1

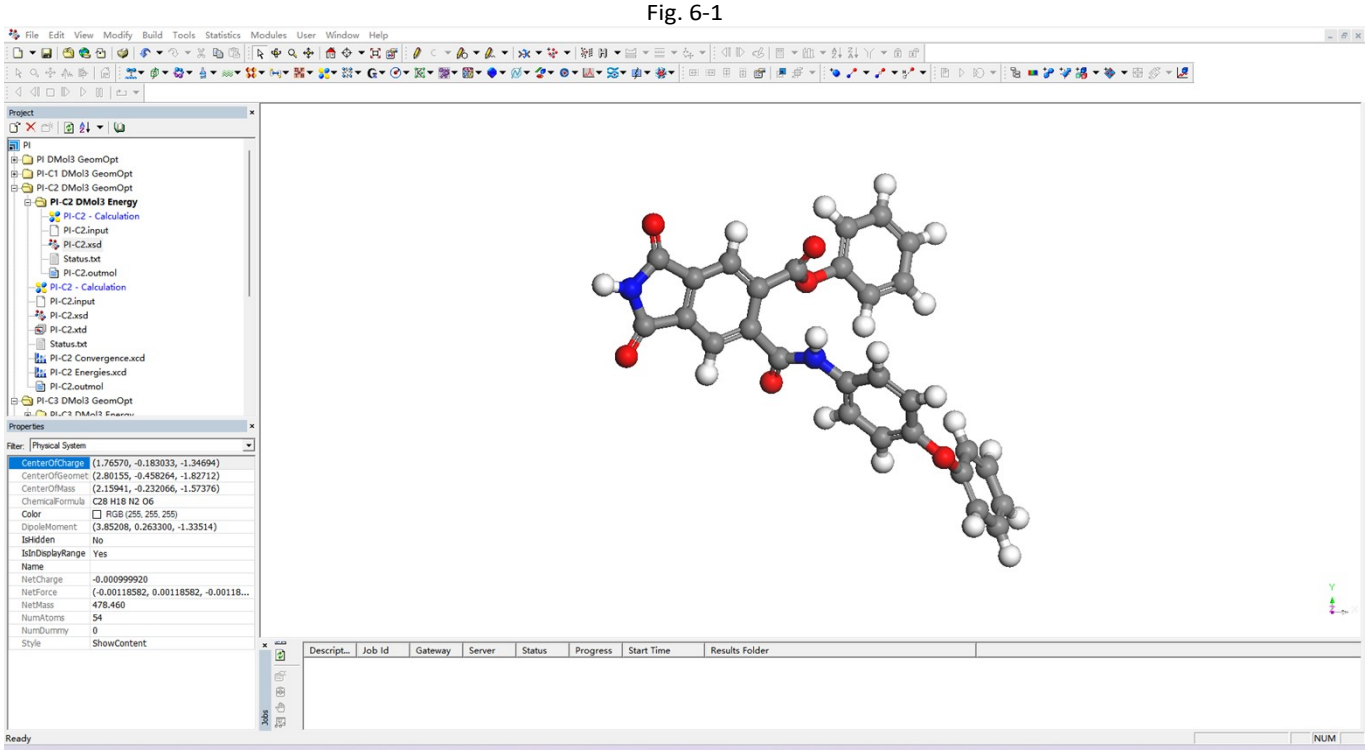

Fig. 6-2

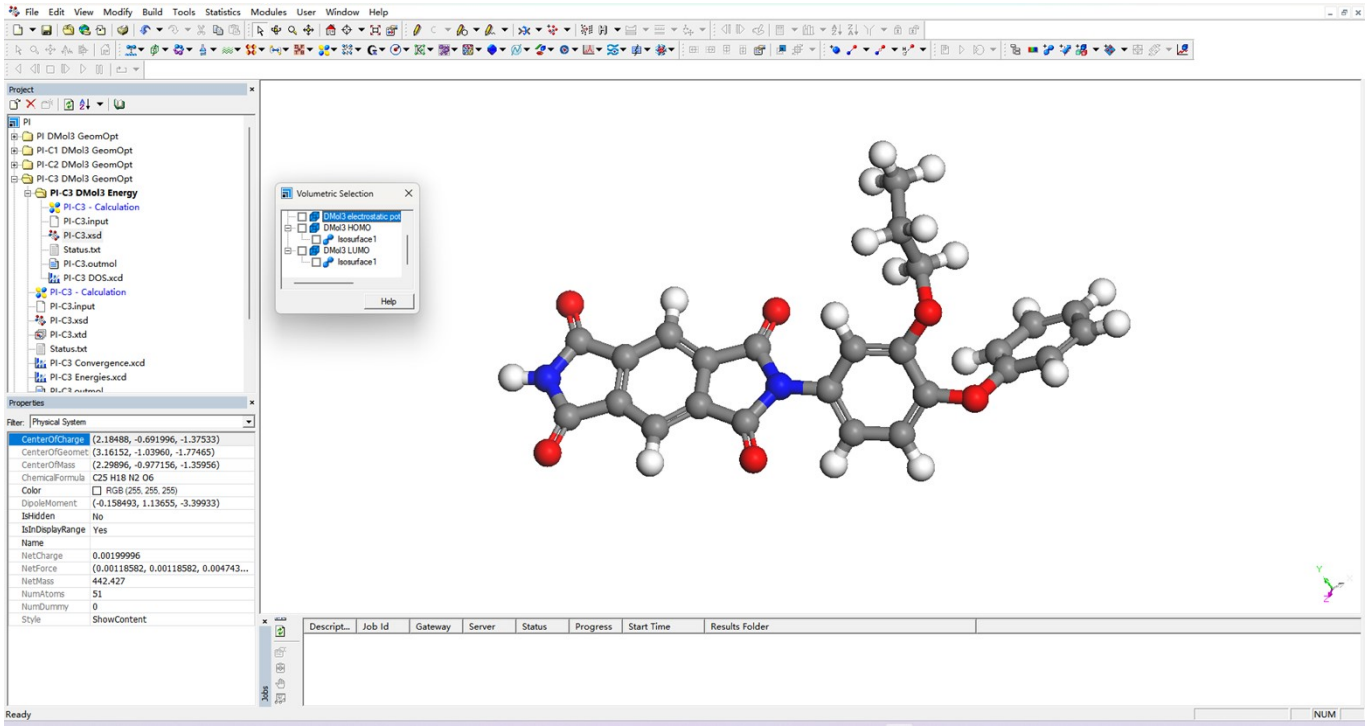

Fig. 6-3

6.2 Utilizing the DMol3 Module to Calculate Parameters Such as the Molecular Electrostatic Potential and Frontier Orbitals of the PI-DGEBA Interface Phase

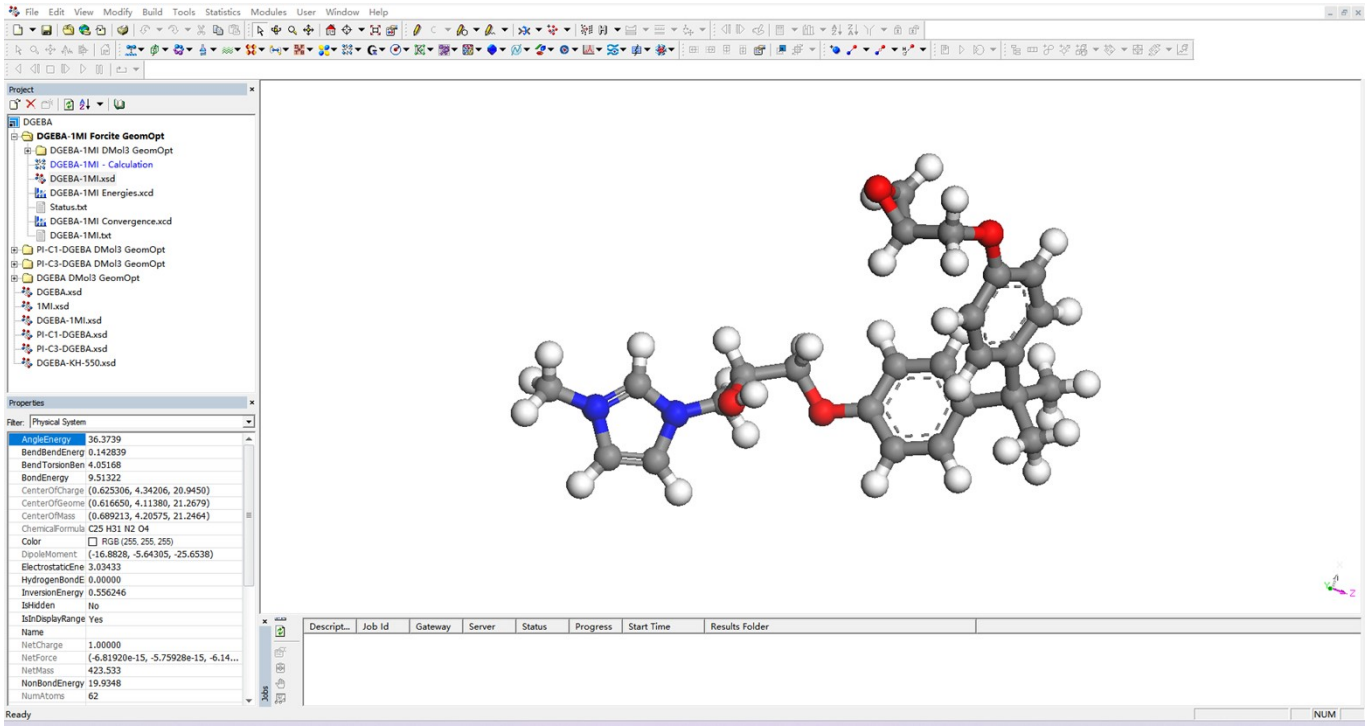

Fig. 6-4 1MI-DGEBA

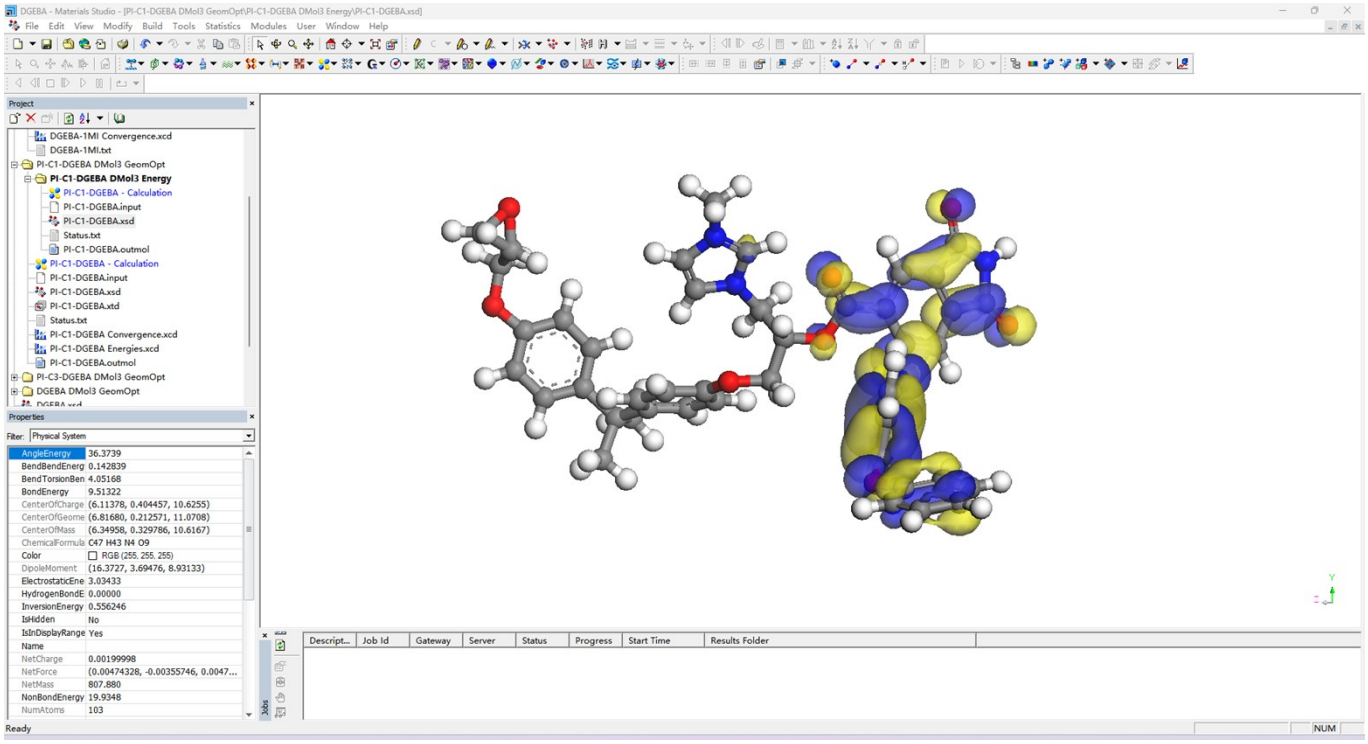

Fig. 6-5 PI-1MI-DGEBA

6.3 Constructing a BST@S-KH550 Interfacial Model Using the Amorphous Cell Module

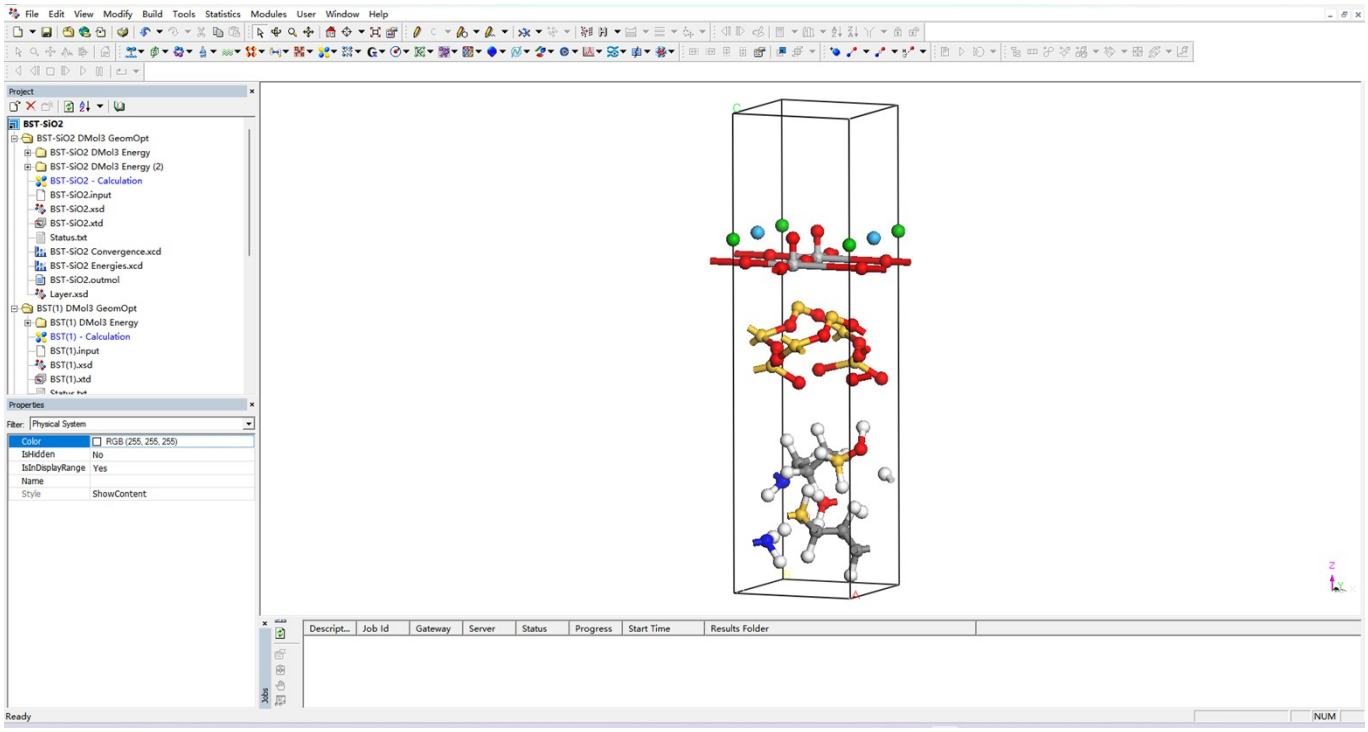

Fig. 6-6

6.4 Calculate the Binding Energy Between Interfaces of BST@S-KH550 Using the Forcite Module

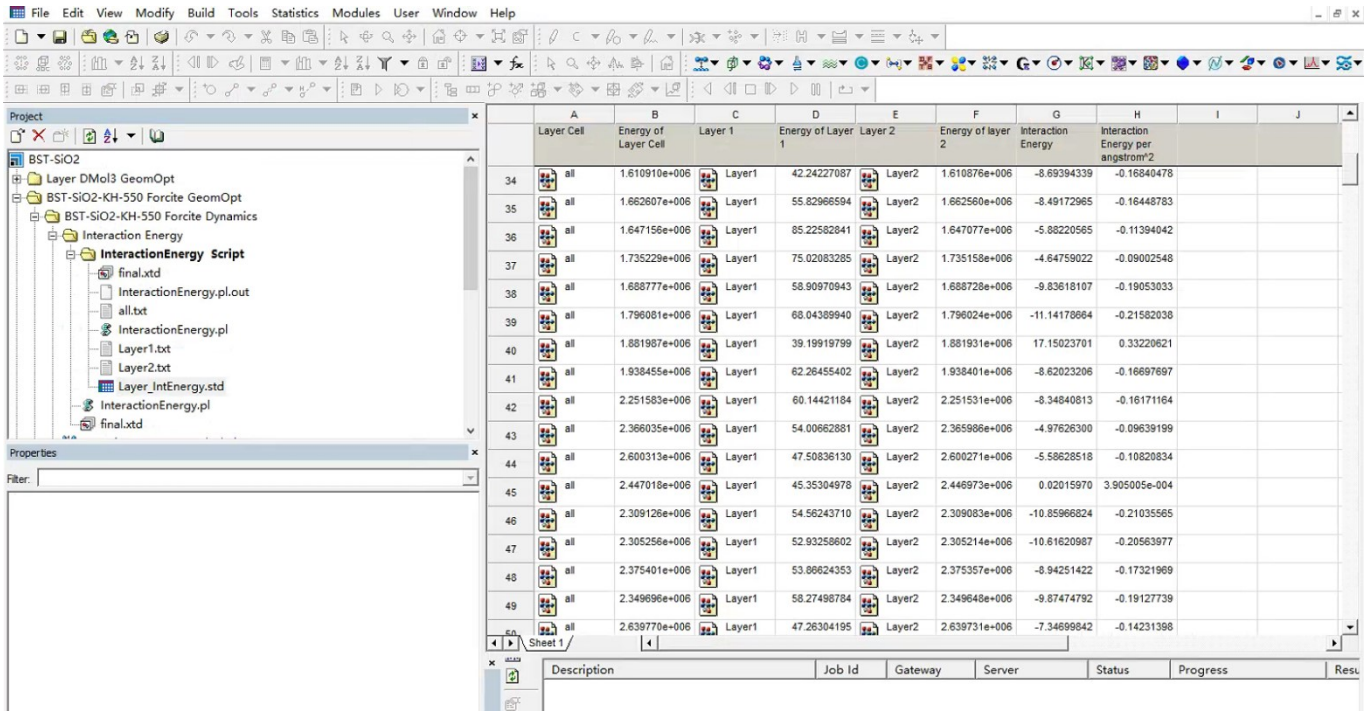

Fig. 6-7

7 Film Thicknesses of Each Group

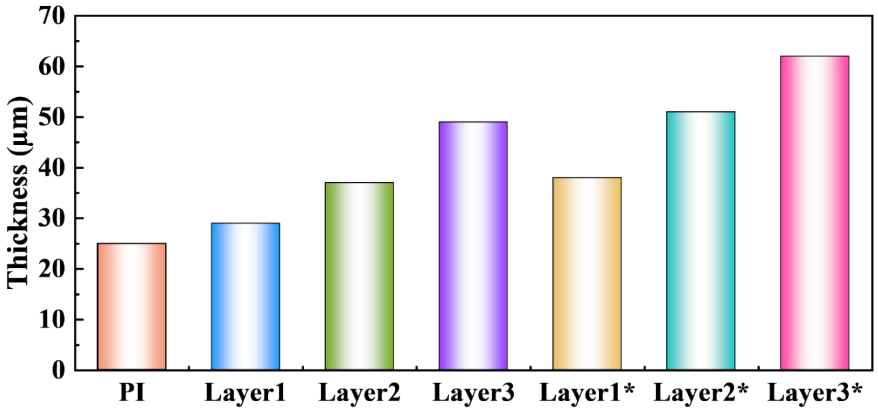

Fig. 7-1