Supplementary Information

Modulating crystal phase of Zr-based solid acid catalyst to boost synthesis of 9, 9-bis(4-hydroxyphenyl) fluorene

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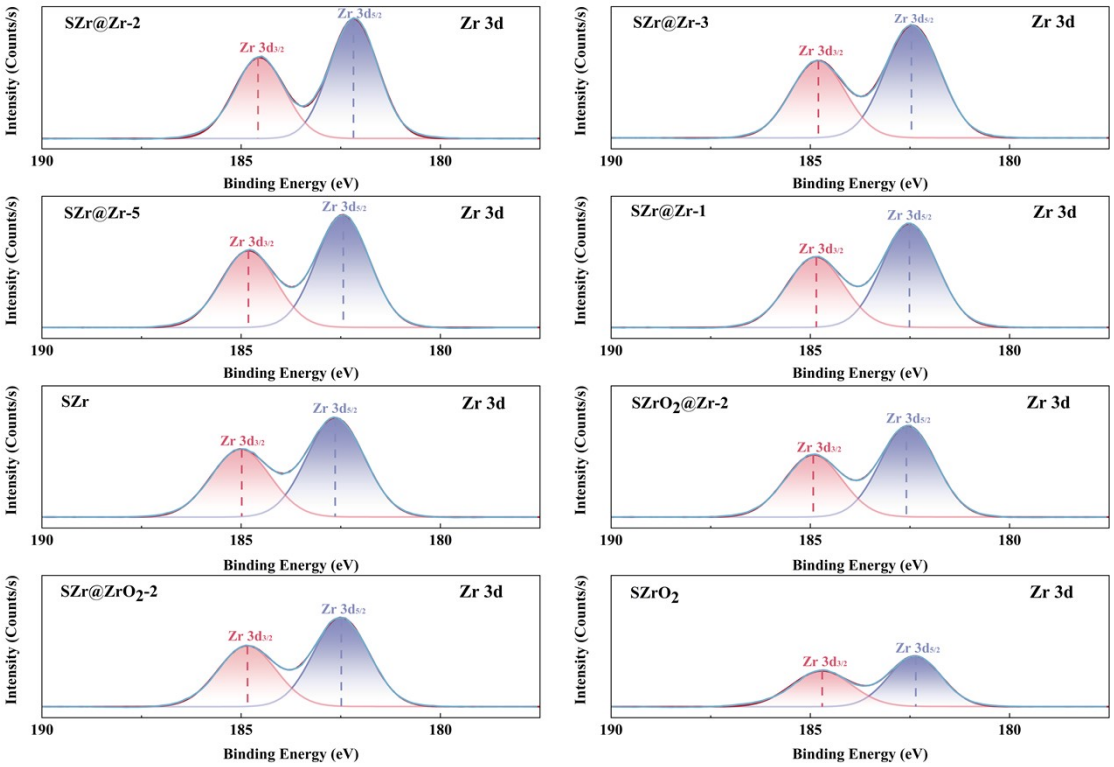


Fig. S1. Zr 3d XPS spectra of catalysts.

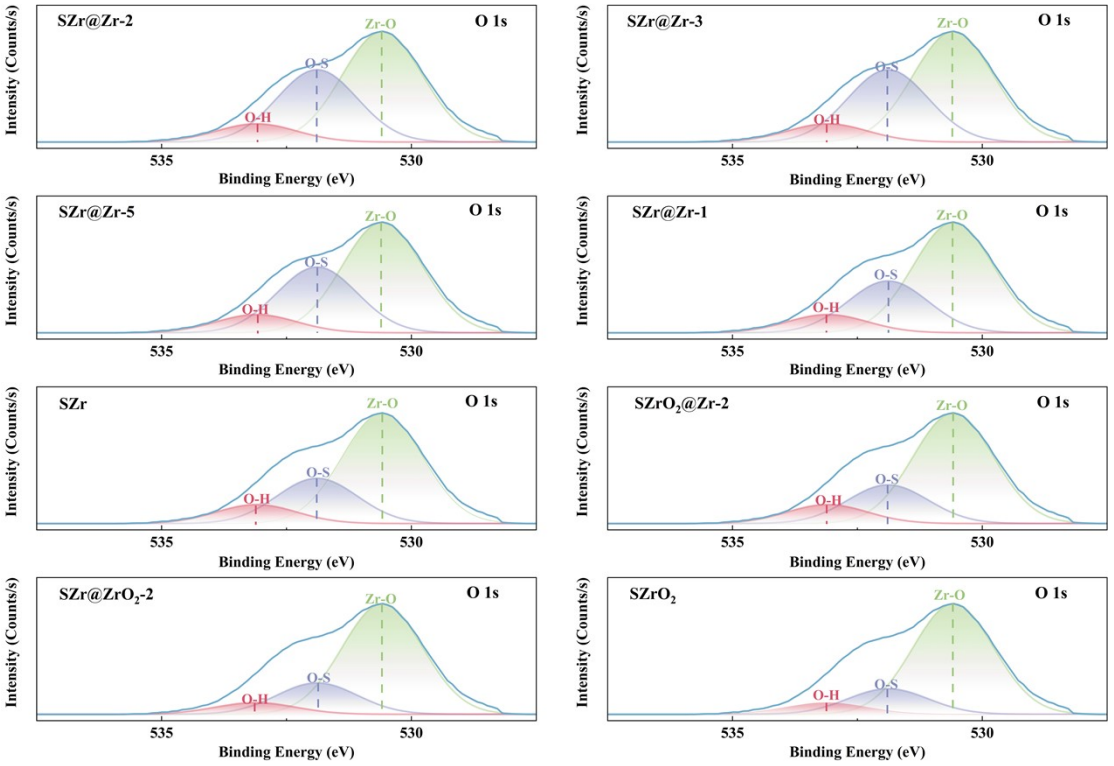


Fig. S2. O 1s XPS spectra of catalysts.

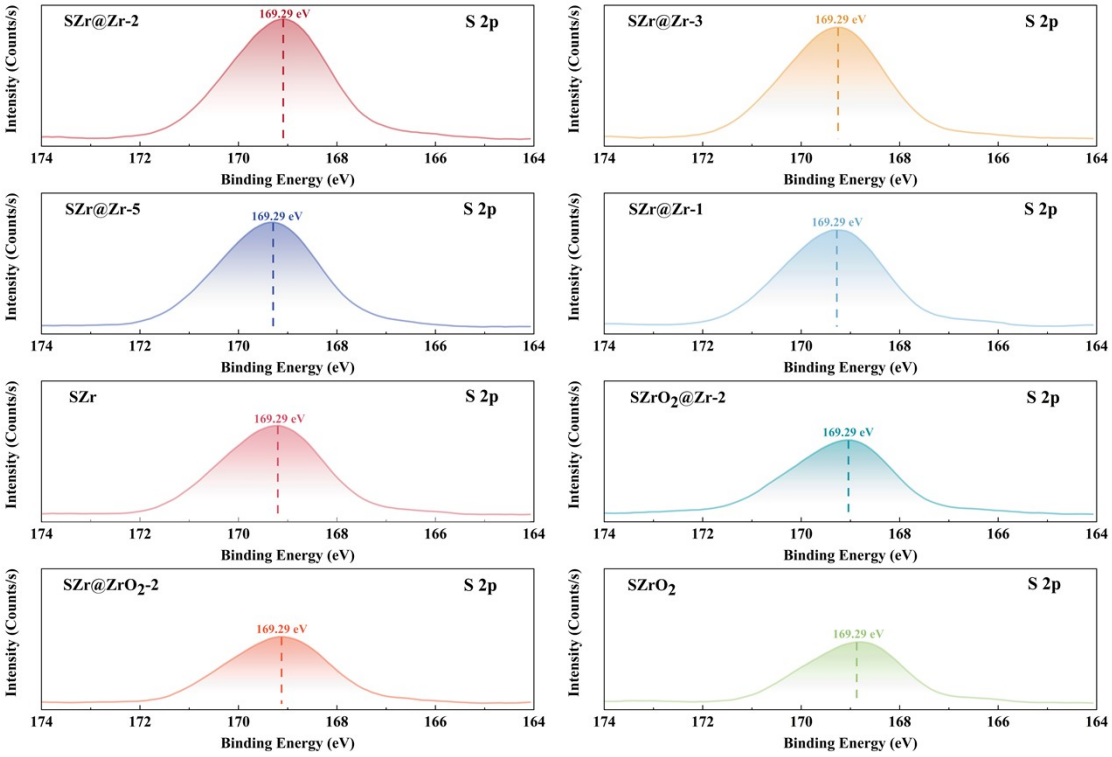
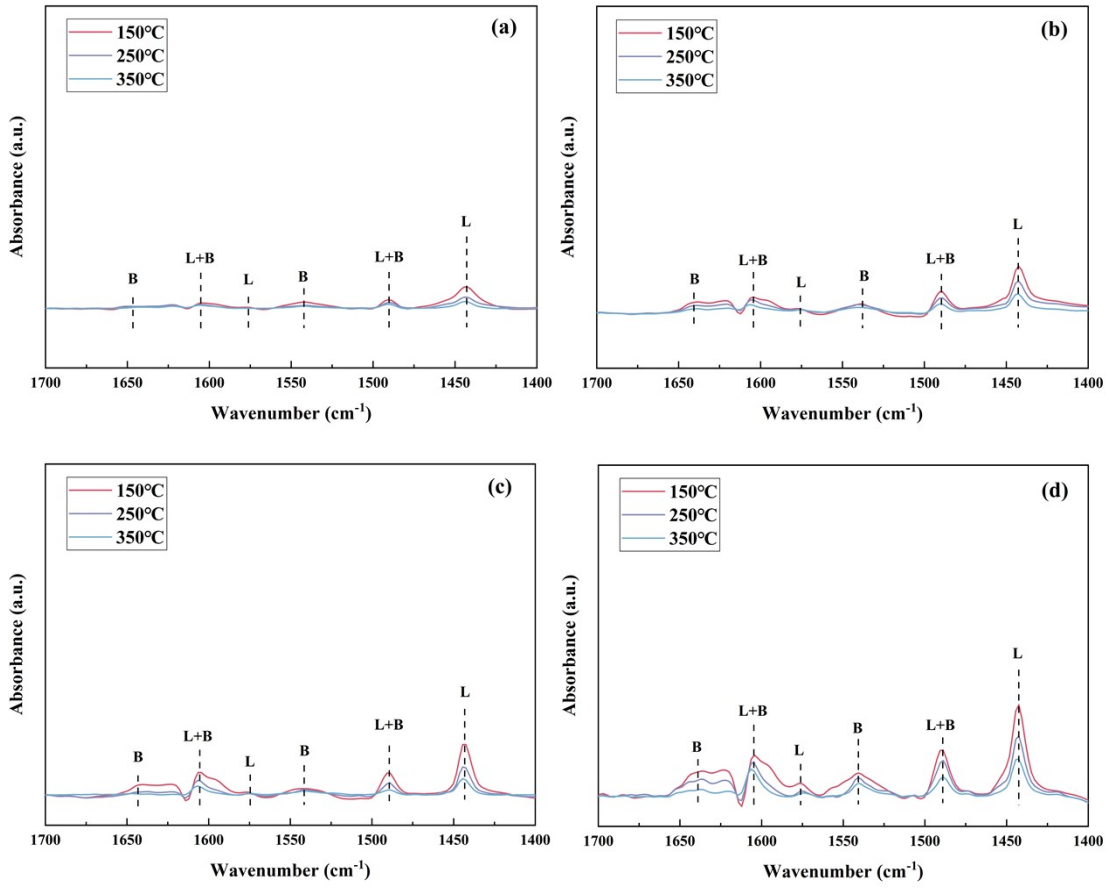


Fig. S3. S 2p XPS spectra of catalysts.



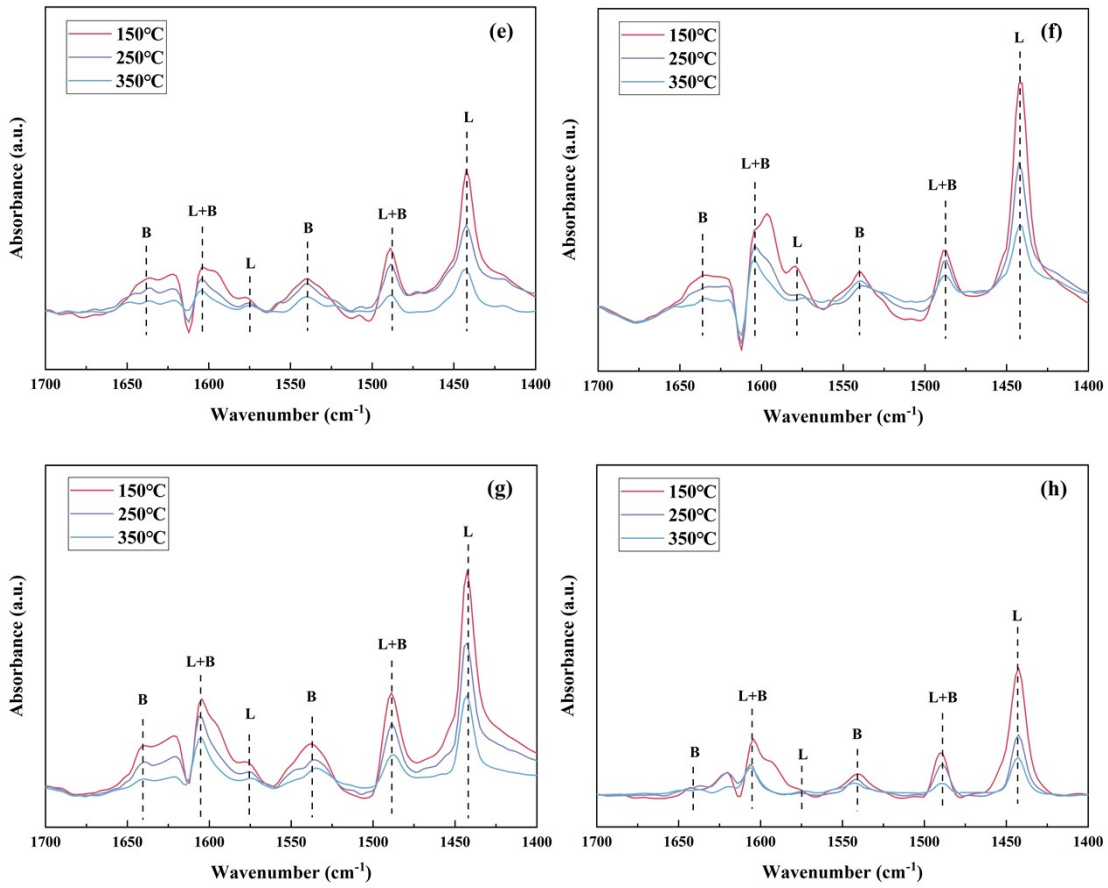


Fig. S4. Py-FTIR spectrums of catalysts. (a) $SZrO_2$; (b) SZr@ZrO_2-2; (c) $SZrO_2$@Zr-2; (d) SZr; (e) SZr@Zr-1; (f) SZr@Zr-2; (g) SZr@Zr-3; (h) SZr@Zr-5.

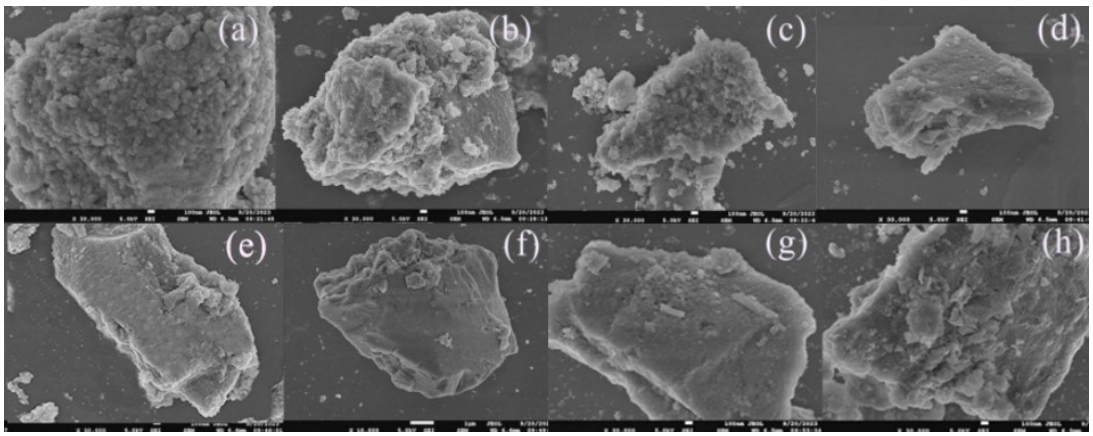


Fig. S5. SEM images of catalysts. (a) $SZrO_2$; (b) SZr@ZrO_2-2; (c) $SZrO_2$@Zr-2; (d) SZr; (e) SZr@Zr-1; (f) SZr@Zr-2; (g) SZr@Zr-3; (h) SZr@Zr-5.

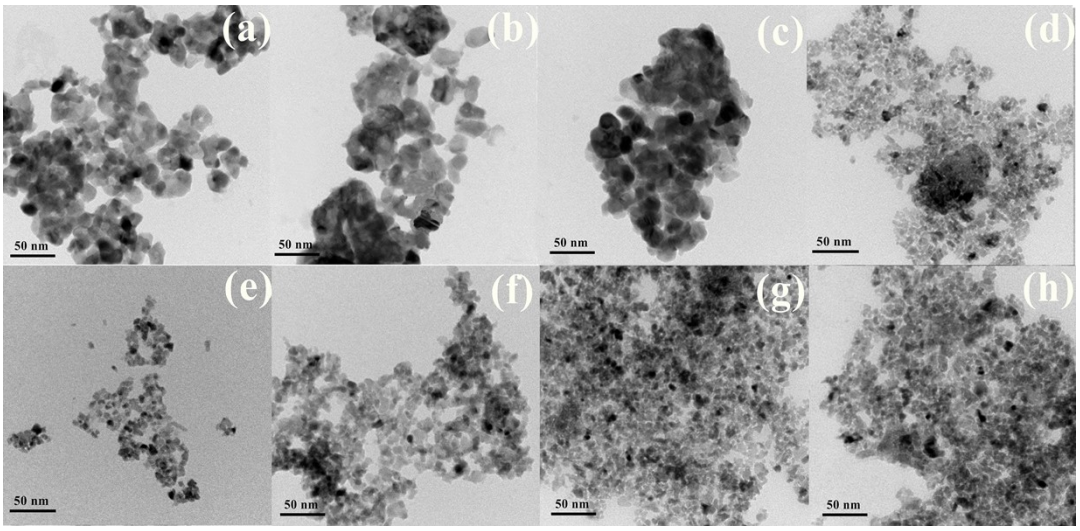


Fig. S6. TEM images of catalysts. (a) $SZrO_2$; (b) SZr@ZrO_2-2; (c) $SZrO_2$@Zr-2; (d) SZr; (e) SZr@Zr-1; (f) SZr@Zr-2; (g) SZr@Zr-3; (h) SZr@Zr-5.