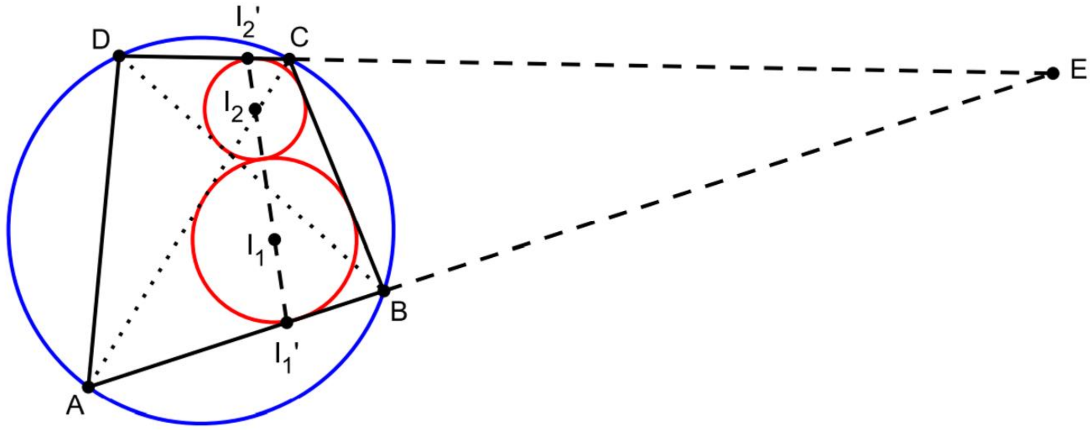

Example 1 88 : As shown in Figure 1, quadrilateral $ABCD$, AB intersects DC at E, I_1, I_2 are respectively the inner centers of △ I_1I_2ABC and △ DBC, intersects AB at I_1', intersects at $I_2'DC$, to prove: A, B, C, D four points cocircle The necessary and sufficient condition is $EI_1' = EI_2'$.

$$\left(\frac{\frac{B-I_1}{B-I_2}}{\frac{C-I_1}{C-I_2}}\right)^2 \frac{\frac{A-C}{A-B}}{\frac{D-C}{D-B}} \frac{\frac{C-B}{C-I_2}}{\frac{C-I_2}{C-D}} \frac{\frac{B-A}{B-I_1}}{\frac{B-I_1}{B-C}} \frac{\frac{C-I_1}{C-A}}{\frac{C-B}{C-I_1}} \frac{\frac{B-I_2}{B-C}}{\frac{B-D}{B-I_2}} = 1,$$

$$\frac{\frac{D-C}{I_2-I_1}}{\frac{I_1-I_2}{A-B}} \frac{\frac{I_1-I_2}{I_1-C}}{\frac{B-I_2}{B-C}} \frac{\frac{A-C}{A-B}}{\frac{D-C}{D-B}} \frac{\frac{C-B}{C-I_1}}{\frac{I_2-B}{I_2-I_1}} \frac{\frac{C-I_1}{C-A}}{\frac{C-B}{C-I_1}} \frac{\frac{B-I_2}{B-C}}{\frac{B-D}{B-I_2}} = 1,$$

Explanation: To prove $EI_1' = EI_2'$, it is necessary to introduce a straight line $I_1'I_2'$, which is inconvenient to eliminate. It needs to be divided into two steps, first prove that the four points B, I_1, I_2, and C are in a circle, and then prove it $EI_1' = EI_2'$. But because of this, it will cause trouble for the push back. The following proof may be more appropriate.