



**Example 2 17 :** As shown in the figure, in  $\triangle ABC$ ,  $I$  is the inner,  $I_b$ , are  $I_c$  the circumcenters of  $B$  and  $C$  respectively,  $M$  is  $I_b I_c$  the midpoint,  $O$  is the circumcenter of  $\triangle BCI$ , prove  $BM \perp BO$ .

$$\frac{B-M}{B-O} = - \left( \frac{B-M}{B-C} \frac{I_b-C}{I_b-B} \right) \left( \frac{B-C}{B-O} \frac{B-I_b}{I-C} \right) \frac{I-C}{I_b-C}$$