

# Twitch 031.1

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TWITCH SOLVES ISL

Episode 31

## Problem

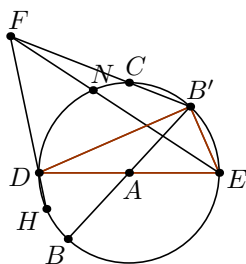
$\triangle BB'C$  is inscribed in circle  $\omega$  with center  $A$  ( $\angle BCB' = 90^\circ$ ,  $\angle CB'B \geq \angle CBB'$ ). Line  $\alpha$  passes through  $A$  and is perpendicular to  $CA$ . Line  $\alpha$  intersects circle  $\omega$  at  $D$  and  $E$ , where  $D$  lies on minor arc  $BC$ . The intersection of ray  $B'C$  through  $C$  and the angle bisector of  $\angle B'ED$  is  $F$ . Line  $FD$  intersects circle  $\omega$  at  $H \neq D$ . Show that line  $HA$  is the perpendicular bisector of  $\overline{BD}$ .

## Video

<https://youtu.be/6ou11s8WP0A>

**Solution**

The point  $F$  is the  $E$ -excenter of  $\triangle EB'D$ .



The end.