

Brazil 2022/2

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TWITCH SOLVES ISL

Episode 106

Problem

Let ABC be an acute triangle, with $AB < AC$. Let K be the midpoint of the arc BC that does not contain A and let P be the midpoint of BC . Let I_B, I_C be the B -excenter and C -excenter of ABC , respectively. Let Q be the reflection of K with respect to A . Prove that the points P, Q, I_B, I_C are concyclic.

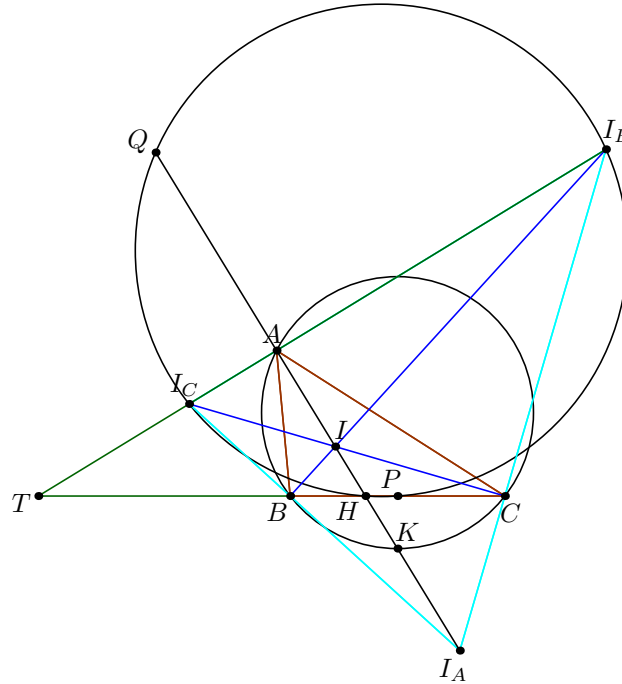
Video

<https://youtu.be/w0Hvkqf0aQ8>

External Link

<https://aops.com/community/c6h2965497p26563619>

Let I_A be the A -excenter, and let $H = \overline{AIK} \cap \overline{BC}$.



- 2