Problem discussed in the videos:

Video (2)
The diagram [drawn on board in video] shows a source of a gas of protons (H^+) that escape through a hole into a vacuum. We wish to select those protons that have a specific velocity, $\mathbf{v}_y$, and that pass through a slit at the top of the apparatus. The apparatus is in a uniform magnetic field, **B**, applied in the –**z** direction [axes drawn on board in video], i.e., into the page.
(A) Find the direction and the magnitude of an electric field, **E**, such that only the protons that go straight across from the source to the slit at velocity $\mathbf{v}_y$ pass through the slit.
(B) Would these same **E** and **B** fields select the same velocity if the particles were electrons?
(C) Would these same **E** and **B** fields select the same velocity if the particles were neutrons?