Hypothesis: The result of a quantum measurement is classical in nature
Reasoning: In quantum mechanics, even though the measurements are quantum in nature and humans can only observe classical information, they can observe the result of a quantum measurement.
Example: In YDSE the photons interfere, which is interference of wave functions and an interference pattern is produced which is classical.
Classical mechanics is a model based on certainty and not probability, so we are certain if a specific thing/ event will happen or will occur, whereas quantum mechanics is a probabilistic model and we can't be certain of the value a wavefunction might take. But after we make a quantum measurement the wavefunction collapses, i.e. it takes a particular value and it's not probabilistic anymore since we can say with certainty what the value of that wavefunction is.
Conclusion: Therefore we can observe the results of a quantum measurement since it is classical in nature.
P.S: This is just a hypothesis I wrote out of my own understanding of quantum mechanics and I'm not sure whether this is right or completely wrong!