In this talk we present new, state-of-the-art in-situ research facilities at Singapore Synchrotron Light Source, which are ideal to probe exotic quantum phenomena at interfaces and surfaces. These in-situ synchrotron-based techniques consist of a new beamline, which covers energy ranges from 3.5 to 1500 eV with controlled polarization (linear and circular polarized lights), resonant soft X-ray scattering, X-ray absorption and X-ray magnetic circular dichroism, UV-VUV reflectance and spectroscopic ellipsometry, and spin and angular resolved photoemission spectroscopy, equipped with in-situ growth of molecular beam epitaxy of pulsed laser deposition (MBE-PLD). We will briefly discuss recent examples of new physics being discovered, particularly in oxides and two-dimensional systems using UV-VUV reflectance and spectroscopic ellipsometry techniques.