Hot above the sun – Coronae and coronal flares.

A corona is a hot, highly ionized, gas envelope that surround certain types of stars. Though the sun's corona has been the subject of study for a long time, yet it is still poorly understood. Coronae of other stars are even more puzzling as temperatures may reach several times greater and luminosity up to 4 orders of magnitude greater than the solar corona's. How is the corona heated to such high temperatures? Why is the chemical composition different from the star's photosphere? And what causes powerful eruptions, known as flares in stellar coronae? Recent years, high resolution X-ray observations of near-by stars, by the Chandra and XMM-Newton space telescopes may help answer these questions.