

## **TCS/17/26 – IMAGE-INE - analysing IMAGE guidance scans to predict late toxicity after radiotherapy in head and neck cancer patients**

Cancers of the head and neck are increasing. Advanced radiotherapy (RT) techniques cure most patients, but permanent side effects are common, and can be severe. Adapting (changing) radiotherapy plans (ART) by altering the dose or target treated during the 6 week course of therapy could reduce side effects while maintaining excellent cure rates. However, we don't yet know how, or when, to select patients for ART. Recent research using sophisticated image analysis techniques shows that features in pre-treatment CT scans, i.e. done before treatment, can partly predict late toxicity. Modern radiotherapy machines can take image guidance (IG) CT scans immediately before each daily treatment. Because they are taken daily during a course of therapy, we believe these on-treatment images will give more predictive information about individual response. Our project will look for features that predict toxicity, to identify patients in whom ART may improve their quality of life.