By simultaneously acquiring data at two different energy levels, DSCT enables spectral 3.2.3 Material. Decomposition: DSCT allows for energy-selective imaging, wherein specific energy ranges are chosen to optimize image contrast for different diagnostic tasks.3.2 The Principal Physics of DSCT: 3.2.1 Dual-Source CT Configuration: Dual-source computed tomography (DSCT) employs two X-ray tubes and detector arrays positioned at right angles to each other within the gantry.This enhanced temporal resolution is particularly advantageous for imaging moving structures, such as the heart or coronary arteries, allowing for more accurate assessment of cardiac function and dynamic processes(23) .Radiologists analyze these images to identify abnormalities, assess disease severity, and guide patient management decisions(17) .12 3.1.6 Radiation Dose Considerations: One important aspect of CT imaging is the consideration of radiation dose.These images typically consist of grayscale representations of tissue density, with brighter regions corresponding to areas of higher X- ray attenuation.Various techniques, such as tube current modulation, dose modulation algorithms, and iterative reconstruction, are employed to optimize image quality while minimizing radiation dose to the patient(18) .3.1.5 Image Display and Interpretation: The reconstructed CT images are displayed on a computer monitor, where they can be viewed and interpreted by radiologists or other healthcare professionals.The X-ray tubes are typically operated at different kilovoltage (kV) settings, such as 80 kV . (and 140 kV, to generate X-ray beams with distinct spectral properties(19