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**HIGH RESOLUTION SOFT X-RAY MICROPROBE (HRSXRM) FOR ANALYZING ONCOGENIC CELLULAR TRANSFORMATION IN KIDNEYS AND PROSTATES**

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This research piece epicenters on the design of a tabletop High Resolution Soft X-Ray Microprobe (HRSXRM) for analyzing oncogenic cellular transformation. The recency in the cringeworthy rapid metastasis and tumour growth rates of certain cancers serve as motivation for the design and microfabrication of this high resolution imaging tool with sub-micrometer accuracy (244nm) for the purpose of micro-irradiating sub-cellular structures. A rotating X-Ray window with vanadium and manganese membrane materials are incorporated into the design, so as to allow 4.952KeV  $VK\alpha_1$  and 5.899KeV  $MnK\alpha_1$  soft X-Ray beams emissions, which best suits micro-probing of biological specimen.

To eliminate comatic aberration, mirror arrangements are positioned to satisfy the Abbe Sine Condition—for good image quality.

By microprobing genomic microstructures with a 244nm spot size soft x-ray beam, the HRSXRM may deliver additional promises which could include: analysis of prostate and kidney cancer oncogenes, enhanced prognosis of advanced prostate cancers, unravelling the exact cause of kidney and advanced prostate cancers and arriving at a more accurate tumour growth rate of poorly differentiated tumours. The HRSXRM is able to spot pre-oncogenic activities well ahead of time, before they lead to the emergence of clinically detectable tumorous masses.

Results reveal that the focal lengths of  $0.25\mu m \leq F \leq 1.50\mu m$  and  $0.04\mu m \leq F \leq 0.2\mu m$  covered by 4.952KeV  $VK\alpha_1$  and 5.899KeV  $Mn K\alpha_1$  soft X-Rays, will occupy circular patches of area  $0.03mm^2 \leq A \leq 0.2mm^2$  respectively. Values of spatial resolution of  $244nm \leq \zeta \leq 1460nm$  are attainable for  $38.1nm \leq F \leq 229nm$  and  $32.0nm \leq F \leq 1460192nm$  covered by 5.899KeV  $Mn K\alpha_1$  and 4.952KeV  $VK\alpha_1$  soft X-rays, respectively.