新东方背诵文选80篇：73显微技术TheMicroscopicTechnique
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https://www.100test.com/kao_ti2020/207/2021_2022__E6_96_B0_E4_B8_9C_E6_96_B9_E8_c96_207297.htm 73 The Microscopic Technique Each advance in microscopic technique has provided scientists with new perspectives on the function of living organisms and the nature of matter itself. The invention of the visible light microscope late in the sixteenth century introduced a previously unknown realm of single celled plants and animals. In the twentieth century, electron microscopes have provided direct views of viruses and minuscule surface structures. Now another type of microscope, one that utilizes x rays rather than light or electrons, offers a different way of examining tiny details. it should extend human perception still farther into the natural world. The dream of building an x ray microscope dates to back 1895. its development, however was virtually halted in the 1940s because the development of the electron microscope was progressing rapidly. During the 1940s, electron microscopes routinely achieved resolution better than that poss ible with a visible light microscope, while the performance of x ray microscopes resisted improvement. In recent years, however, interest in x ray microscopes has revived, largely because of advances such as the developmen t of new sources of x ray illumination. As a result, the brightness available today is millions of times tha t of x ray tubes, which, for most of the century, were the only available sources of soft x rays.The new x ray microscopes considerably improve on the resolution provided by optical microscopes. They can also be used

to map the distribution of certain chemical elements. Some can form pictures in extremely short times. others hold the promise of special capabilities such as three dimensional imaging. Unlike conventional electron microscope, x ray microscope enables specimens to be kept in air and in water, which means that biological samples can be studied under conditions similar to their natural state. The illumination used, so called soft x rays in the wavelength range of twenty to forty angstroms (an angstrom is one ten billionth of a meter), is also sufficiently penetrating to image intact biological cells in ma ny cases. Because of the wavelength of the x rays used, soft x ray microscopes will never match the highest resolution possible with electron microscopes. Rather, their special properties will make possible investigations that will complement those performed with light and electron based instruments. 显微技术显微镜技术的每一个进步都给科学家提供了看待生物体的功能和其性质的新观察方式。 16世纪晚期可视光显微镜的发明引入了一个以前一无所知的单细胞植物和动物的领域。 20世纪电子显微镜提供了对病毒和极微物体的表面结构的直接观察。 现在一种新的显微镜，利用X光而不是自然可见光或电子，为观察微小细节提供了不同的观察方式，它将扩展人类对自然世界进行的更深入的认识。 研制X光显微镜的梦想可追溯到1875年；但它的发展却在20世纪40年代实际上停止了，因为电子显微镜的发展进行很快。 在40年代，电子显微镜毫无例外地比可见光显微镜获得了更好的分辨能力。 然而X光显微镜的表现却没有改进。 但近年来，对它的兴趣又复活了，这很大程度是因为例如X射线在新光源上的发展的结果。 结果，今天可得

到的亮度是大半个世纪以来唯一可得到的X光源-X光管的几百万倍。 新的X光显微镜相当大地提高了电子学显微镜提供的分辨能力。 它们也可用来给某些化学元素绘制分布图。 某些X光显微镜可以在极短的时间里成像。 另一些可望具备三维成像的特殊功能。 与传统的电子显微镜成像术不同，X光显微镜成像术可使分析样本保留在空气或水中。 这就意味着生物样品可以在与它们自然环境相近的条件下被观察研究。 其使用的照明度，即所谓的软性X射线，其波长在20到40埃之间(1米的100亿分之一为1埃)。 在许多情况下也能够穿透完整无缺的生物细胞并成像。 由于使用的X射线的波长使软性X射线显微镜永远比不上电子显微镜可能具有的最高分辨力。 不过他们特殊的功能将可能补充那些用自然光和电子仪器所进行的观察。 