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DEPARTMENT OF PHYSICS

A STUDY PROJECT ON THE CHARACTERIZATION TECHNIQUES USED TO KNOW THE CRYSTAL STRUCTURE AND MORPHOLOGY OF THE MATERIAL

THE PROJECT WORK SUBMITTED

BY

Student1

AND

Student1

B.Sc (MPCS) FINAL YEAR

GOVERNMENT DEGREE COLLEGE, ETURNAGARAM

DISTRICT MULUGU, TELANGANA STATE-506165

CERTIFICATE

This is to certify that the project entitled ”A STUDY PROJECT ON THE CHARACTERIZATION TECHNIQUES USED TO KNOW THE CRYSTAL STRUCTURE AND MORPHOLOGY OF THE MATERIAL” presented by Student 1 and Student 2 students of B.Sc(MPCs)-III year, Government Degree College, Eturnagaram is worthy of consideration for the study project to submit to Yunvatarangm student project competition, a record of this project work carried out unde r my guidance.

D.NAVEEN

Lecturer in Physics

Department of Physics

Govt.Degree College, Eturnagaram

Dist:; Mulugu

Telangana-506165

ACKNOWLEDGEMENT BY THE STUDENTS

This Project work would not have been possible without the help of lecturers, principal and commissioner of higher education. First we would like to express my deep sense of gratitude to my supervisor **D.Naveen** for his guidance and continuous support. to Sri A.Sanjeeva Reddy Incharge Dept.of Physics and R.Kedarishwar , Asst.Prof.of Physics, Government Degree College, .

We also gratefully thank to sri **A.Sanjeeva Reddy**, Head of the Department of Physics, **R.Kedarishwar,** Asst.Prof.of Physics, for providing necessary facilities during the project work.

We would like to thank all the lecturers of Govt.Degree College, Eturnagaram. My special thanks to my classmates and friends who helped us during project. like thank to

We also extended our thanks to **Dr.B.Ramulu, Principal**, Govt.Degree College, Eturnagaram. Finally, and most importantly we thank to Commissioner of Collegiate Education Sri.**Navin mittal** sir for providing us this opportunity.

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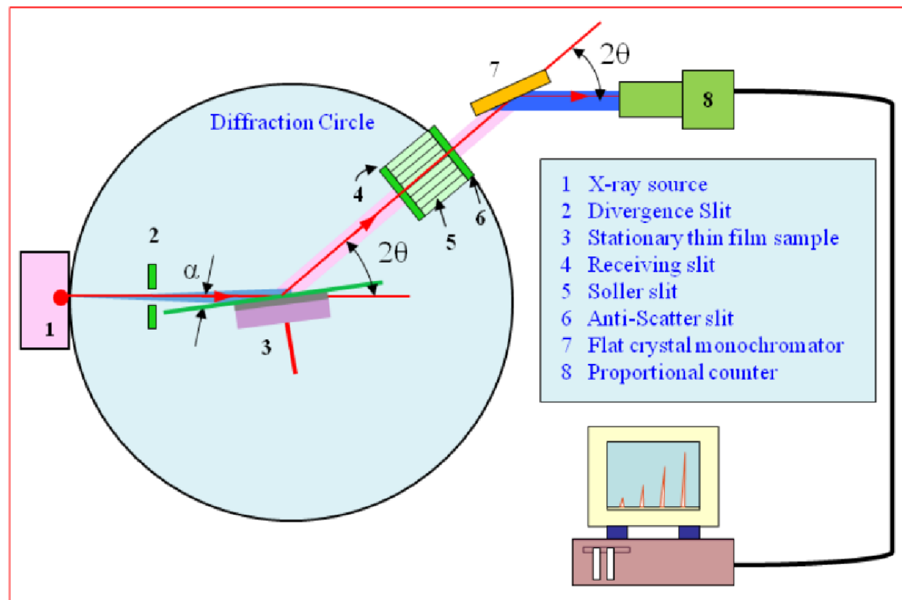

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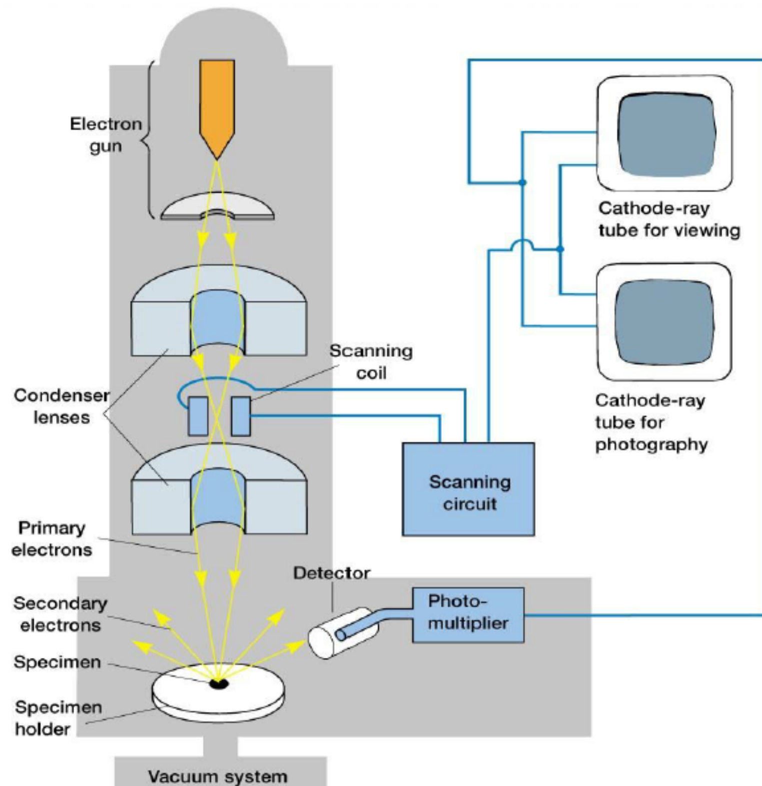

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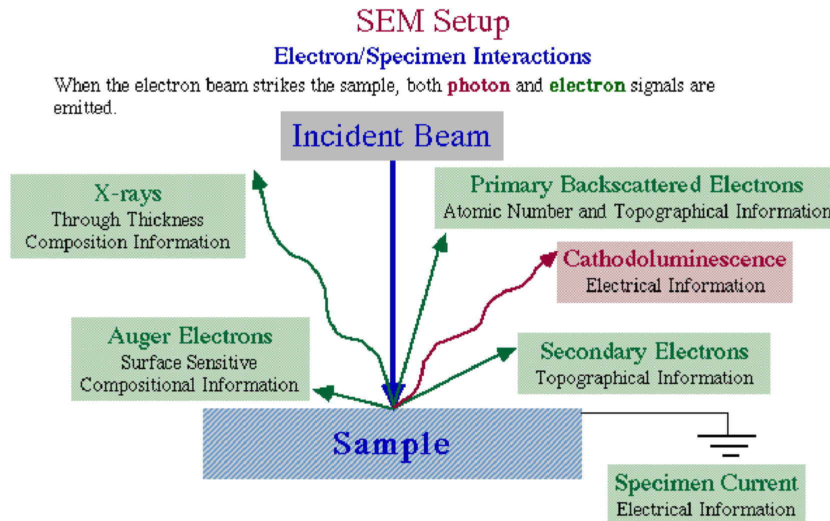

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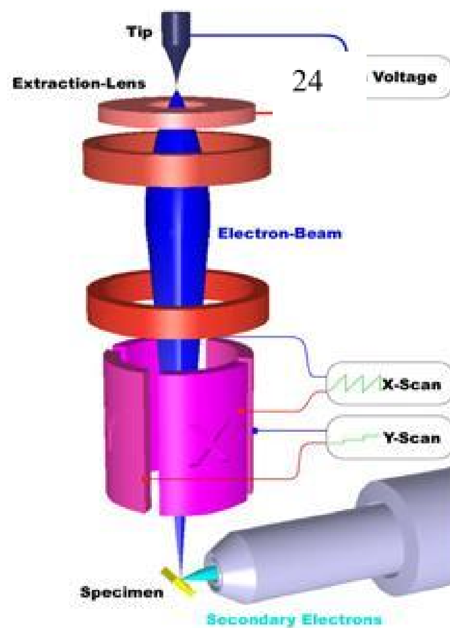

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On the other hand, in the conventional FEM configuration, the corresponding field generated at the emitter apex is calculated using $F = \beta_0 V$, and the theoretical field enhancement factor β_0 = 1/kr, where k is a constant known as the geometrical factor and has the value 5 for a hemispherical emitter, and r is the tip radius. This field is referred to as the local field at the

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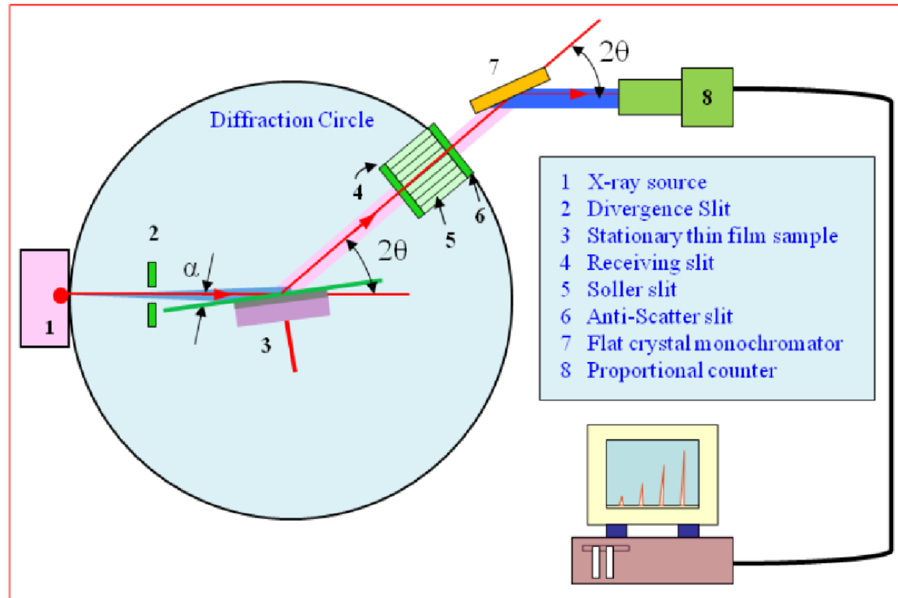

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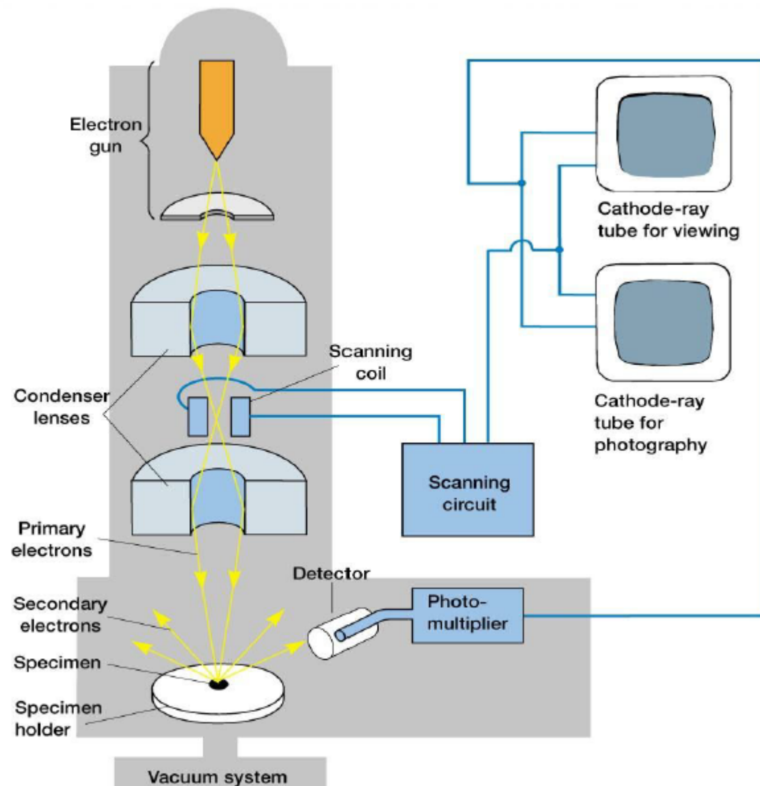

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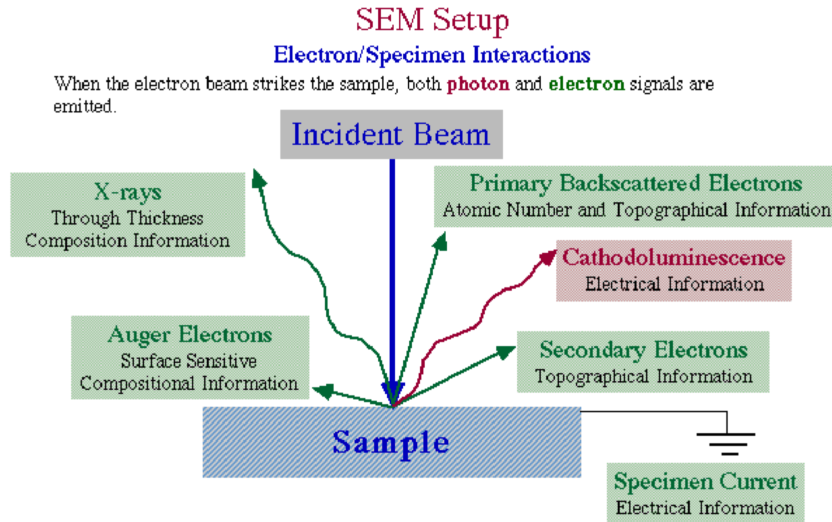

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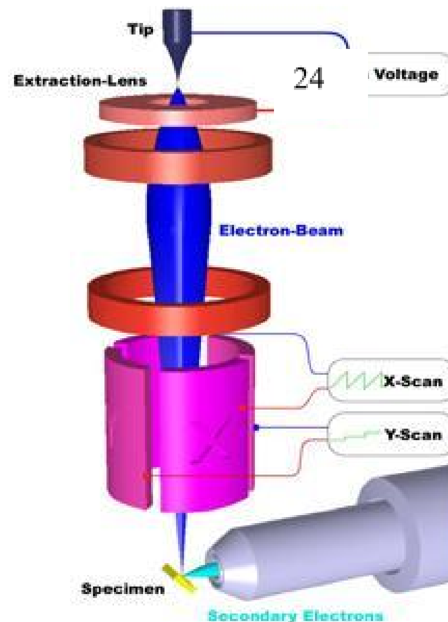

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