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K. Basar, T. Sakuma and E. Kartini, *Frequency and Temperature Dependent of Conductivity from Superionic Conducting Glass (AgI)_x(AgPO₃)_{1-x}*, Proceedings of the International Conference on Mathematics and Natural Science (2006) 881.
Book : W.S. Lyon, Guide to Activation Analysis, 2nd ed., Van Nostrand Co. Inc., New York (1960) 33.
Part of Book : M.F. Collins and E. Kartini, *Superionic Conduction in Silver Oxysalt-Silver Salt Glasses*, in: Recent Research Development of Solid State Ionics Vol. I, S.G. Pandalay (Ed.), Transworld Research Network, India (2003) 167.
Thesis : D.L. Davids, Recovery Effects in Binary Aluminum Alloys, Ph.D. Thesis, Harvard University (1998).
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