

XXI. NETWORK SYNTHESIS

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RESEARCH OBJECTIVES

Appropriate problems in this area include all aspects of the analysis of linear networks, as well as of realization and approximation techniques that are directly or indirectly useful in synthesis. In other words, any investigations that help clarify our understanding of the theoretical or practical aspects of linear network behavior are suitable for exploration by this group, regardless of whether or not they are part of an organized program. In fact, as organized programs go, ours is not very well defined. The several seemingly unrelated topics reported upon in the Quarterly Progress Report of October 15, 1957, illustrate this fact.

As mentioned in last year's research objectives, a topic of major activity at present is that involving active and/or nonbilateral networks. Within the past year this problem has been clarified considerably and some interesting results obtained (see "Transformation Theory Applied to Linear Active and/or Nonbilateral Networks," Trans. IRE, vol. CT-4, no. 3, p. 106, Sept. 1957; "Some Generalizations of Linear Network Analysis that Are Useful when Active and/or Nonbilateral Elements Are Involved," Quarterly Progress Report, Oct. 15, 1957, p. 103; and the report by T. G. Stockham, Jr. which is presented in Section XX-C of this issue). Further exploitation of this method of approach to both the analysis and synthesis of active, nonbilateral networks is being studied in several theses that are in progress.

The results of John C. Pinson's study of all-pass networks mentioned in last year's summary has been published as Technical Report 324.

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