

feedback operational amplifier (CFOA), sometimes also referred as operational trans-impedance amplifier, has received notable attention in literature because of its two very significant properties namely, a very high slew rate (theoretically infinite; practically as high as several thousand volts per  $\mu\text{s}$  as against a very modest  $0.5 \text{ V}/\mu\text{s}$  for the general purpose and most popular  $\mu\text{A}741$  type op-amp) and its capability of offering gain bandwidth decoupling (thereby implying the feasibility of maintaining essentially a constant bandwidth and variable gain, for low to medium values of the gains). Though CFOAs have some limitations as compared to the traditional VOAs, their advantageous features coupled by their versatility and flexibility, particularly of a specific type which has its compensation pin accessible externally, overshadows their demerits in a number of applications.

This monograph is basically concerned with CFOAs and their applications and includes an extensive discussion about various types of CFOAs, the basic circuits realizable using them, their merits and demerits and their applications in the realization of continuous time analog filters, simulation of inductors and other type of impedances, synthesis of sinusoidal oscillators and miscellaneous linear and non-linear applications (including a variety of relaxation oscillators and chaotic circuits). Also covered are numerous examples of the use of CFOAs in realizing a number of other newly proposed active circuit building blocks. The monograph closes by giving a brief account of the recent developments in the design of bipolar and CMOS CFOAs, a discussion about various modified forms of CFOAs proposed in the recent literature from time to time, outlining the current directions of research in this area and including a supplementary list of references for further reading.

It is hoped that this monograph, which contains a comprehensive collection of over 200 CFOA-based analog circuits with their relevant theory and design/performance details, should turn out to be a useful source of reference for academicians (both educators and students), practicing engineers and anybody interested in analog circuit design using CFOAs. Readers may also find a number of interesting and challenging problems worthy of further investigations, from the various suggestions given in the respective chapters of this monograph.