Σ. ΠΙΝΤΖΟΣ    Π. ΦΡΑΓΚΟΣ

# Συστήματα Ραντάρ

## Abstract

This book is referred to advanced topics of 'Radar Systems'. Namely, in the Chapter 1 topics like the 'radar equation', the matched filter, the integration of radar pulses, the radar target resolution and the radar losses are described. In Chapter 2, the effect of the presence of the earth surface on the propagation of the radar waves is described (F factor). In Chapter 3 the effect of the presence of terrain to the propagation of the radar waves is described (signal to clutter ratio), and similarly for propagation of radar waves through rain ('volume clutter'). In Chapters 4 and 5 we examine the 'radar detection theory' (i.e. detection of radar signals in the presence of receiver electronic noise). In Chapter 6 we examine the functioning of a radar system in the presence of jamming, while in Chapter 7 we present the so-called 'bistatic radar'. Furthermore, in the Chapter 8 we examine properties of the 'radar cross section' of radar targets, while in the Chapter 9 we examine in detail the so-called MTI radars (MTI = Moving Target Indicator). Moreover, the 'Continuous Wave Radars' (without or with frequency modulation) are examined in the Chapter 10, while the 'Pulse Doppler' radars are examined in the Chapter 11. Furthermore, in Chapter 12 we examine the so-called 'tracking radars' ('monopulse radars' etc.). Moreover, in Chapter 13 we examine sources of error for radar targets, such as the 'glint effect' and the 'multipath error'. Furthermore, in Chapter 14 we examine the detection of radar targets through the 'binary detection theory', while in Chapter 15 we examine the so-called 'radar ambiguity function'. Moreover, in Chapter 16 we examine the modern technology of the 'Synthetic Aperture Radar' (SAR), and finally in Chapter 17 we present the so-called 'secondary radars'.