Bengt Johansson was born in Örebro, Sweden. After an exam in electronic engineering 1978 he started the Medical studies at the University of Umeå and had his Medical Degree in 1984. Has been trained and working at Örebro University Hospital since 1984. He has now a position as Senior Consultant in Surgical Oncology and Radiotherapy at the Department of Oncology at Örebro University Hospital. He has been focused on clinical development and research on all kind of Brachytherapy since the early 1990’s and is now a well-known, national and international expert in this area.

The Oncology Department at Örebro University Hospital was one of the pioneers in the world in clinical use of Pulsed Dose Rate (PDR) Brachytherapy. A lot of experience has been collected during the years. Few long-term data on the effectiveness of PDR fractionation have been published. This thesis gives a comprehensive overview of the theoretical background, radiobiology experiments, early clinical results and clinical aspects of the PDR technology.

Obtained long-term clinical results are presented for three different treatment situations and strongly support that PDR treatment results are similar to the classical continuous Low Dose Rate (LDR) brachytherapy. Thus, PDR is the ultimate, modern substitute for LDR brachytherapy and opens up for new future treatment areas of certain cancer diseases.