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### The spectra of supersymmetric states in string theory

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## Part III

# Multi-Holes and Bubbling Solutions



This part of the thesis contains two chapters.

In chapter 4 we first discuss various important properties, including the attractor mechanism and the presence of walls of marginal stability for multi-hole solutions, of the supersymmetric solutions of the  $\mathcal{N} = 2$ , D=4 supergravity theories discussed earlier in section 2.2.2. Later in section 4.4 we explicitly work out the details of these solutions using a type IIA compactification language.

After we have introduced the necessary background, in chapter 5 we move on to discussing properties of the lift of these solutions to five-dimensions using the ideas discussed in section 2.2.2. In particular we will study closely the case in which the M-theory limit is taken. Finally we focus on specific choice of charges such that the five-dimensional solution is smooth and horizonless. This chapter is based on the results reported in publication [75].

