

Contents

1	Introduction	3
1.1	The spacelike Cauchy problem in General Relativity	7
1.2	Singularities?	16
1.3	Strong Cosmic Censorship?	19
1.4	(Weak) Cosmic Censorship?	22
1.5	Some answers, in spatially compact space-times with two or more spacelike Killing vector fields.	25
1.6	Spatially open space-times: some small data results.	34
1.7	Beyond the spacelike Cauchy problem: Robinson–Trautman space-times.	38
1.8	Necessary conditions for uniqueness in the large.	43
2	“Highly symmetric” space-times	49
2.1	From symmetric Cauchy data to symmetric space-times.	49
2.2	$SO(3) \times U(1)$ symmetric space-times, ${}^3\Sigma = L(p, 1)$	59
2.3	$SO(3)$ symmetry, 2-dimensional principal orbits.	61
2.4	Spatially compact Bianchi I space-times.	65
3	$U(1) \times U(1)$ stability of the $(\frac{2}{3}, \frac{2}{3}, -\frac{1}{3})$ Kasner metrics.	68