

Examples with no extremal metrics

Diffeo-(homeo)-morphism Type	f	$\dim \mathfrak{t}^+$
$S^{2n} \times S^{2n+1}$	$z_0^{8l} + z_1^2 + \dots + z_{2n+1}^2, n, l \geq 1$	$n + 1$
$S^{2n} \times S^{2n+1} \# \Sigma_1^{4n+1}$	$z_0^{8l+4} + z_1^2 + \dots + z_{2n+1}^2 = 0, n \geq 1, l \geq 0$	$n + 1$
Unit tangent bundle of S^{2n+1}	$z_0^{4l+2} + z_1^2 + \dots + z_{2n+1}^2, n > 1, l \geq 1$	$n + 1$
Homotopy sphere Σ_k^{4n+1}	$z_0^{2k+1} + z_1^2 + \dots + z_{2n+1}^2, n > 1, k \geq 1$	$n + 1$
Homotopy sphere Σ_k^{4n-1}	$z_0^{6k-1} + z_1^3 + z_2^2 + \dots + z_{2n}^2, n \geq 2, k \geq 1$	n
Rat. homology sphere $H_{2n} \approx \mathbb{Z}_3$	$z_0^k + z_1^3 + \dots + z_{2n}^2, n, k > 1$	n
$2k(S^{2n+1} \times S^{2n+2}), D_{n+1}(k)$	$z_0^{2(2k+1)} + z_1^{2k+1} + z_2^2 + \dots + z_{2n+2}^2, n, k \geq 1$	$n + 1$
$\#m(S^2 \times S^3), m = \gcd(p, q) - 1$	$z_0^p + z_1^q + z_2^2 + z_3^2, p \geq 2q \text{ or } q \geq 2p$	2

Table 1: Manifolds having Sasaki Cones with no Extremal Metrics

	f	\mathbf{w}	$\dim \mathfrak{t}^+$
A_{k-1}	$z_0^k + z_1^2 + \dots + z_n^2, k \geq 3$	$(2, k, \dots, k)$	$1 + \lfloor \frac{n}{2} \rfloor$
D_{k+1}	$z_0^k + z_0 z_1^2 + z_2^2 + \dots + z_n^2, k \geq 2$	$(2, k - 1, k, \dots, k)$	$\lfloor \frac{n}{2} \rfloor$
E_6	$z_0^4 + z_1^3 + z_2^2 + \dots + z_n^2$	$(4, 3, 6, \dots, 6)$	$\lfloor \frac{n}{2} \rfloor$
E_7	$z_0^3 + z_0 z_1^3 + z_2^2 + \dots + z_n^2$	$(6, 4, 9, \dots, 9)$	$\lfloor \frac{n}{2} \rfloor$
E_8	$z_0^5 + z_1^3 + z_2^2 + \dots + z_n^2$	$(6, 10, 15, \dots, 15)$	$\lfloor \frac{n}{2} \rfloor$

Table 2: ADE n -folds with $n \geq 4$ whose Sasaki Cones have no Extremal Metrics