

Info

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Analytic functions on the circle $\mathcal{C}^\omega(S^1)$

Consider the space of analytic functions on the circle

$$\mathcal{C}^\omega(S^1) \hookrightarrow \mathcal{C}^\infty(S^1)$$

$\max\mathrm{Spec} \mathcal{C}^\omega(S^1)$ and classification of ideals

- Let $I \subseteq \mathcal{C}^\omega(S^1)$ be an ideal not contained in any $\mathfrak{m}_p, p \in S^1$.
 - Thus for every $p \in S^1$ there is a $f(p) \neq 0$ implying f is nonzero in an onb of p , so

$$\{S^1 \setminus f^{-1}(0) \mid f \in I \setminus \mathfrak{m}_p, p \in S^1\}$$

is an open cover of S^1 .

- Since S^1 is compact, there is a finite subcover, so there are finitely many $f_1, \dots, f_n \in I$ such that $\{S^1 \setminus f_i^{-1}(0)\}$ cover S^1 .
- Thus,

$$f_1\bar{f}_1 + \dots + f_n\bar{f}_n \in I$$

has no zeros, so it is invertible.

Hence,

Proposition:

$$\max\mathrm{Spec} \mathcal{C}^\omega(S^1) \cong S^1$$

[1]

Current note has 0 direct children and 0 total descendants.

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And it has 1 siblings.

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