

Info

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$$\mathcal{O}(D)$$

Definition. Holomorphic functions on disl

We have the space

$$\mathcal{O}(D)$$

of holomorphic functions $D \rightarrow \mathbb{C}$.

Then

- for $p \in [1, \infty]$ let

$$\mathcal{O}^p(D) := \left\{ f \in \mathcal{O}(D) \mid \|f\|_p := \sup_{r \in (0,1)} \left| \frac{1}{2\pi} \int_{rS^1} |f|^p \right|^{\frac{1}{p}} < \infty \right\}$$

is the p -th **Hardy space**

- $$\mathcal{O}^\infty(D) := \left\{ f \in \mathcal{O}(D) \mid \|f\|_\infty := \sup_{z \in D} |f(z)| < \infty \right\}$$

is the ∞ **Hardy space**

- $$\mathcal{O}^N(D) := \left\{ f \in \mathcal{O}(D) \mid \sup_{r \in (0,1)} \frac{1}{2\pi} \int_{rS^1} \log |f| < \infty \right\}$$

is the **Nevanlinna class**

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[1]([https://rupadarshiray.github.io/notes/wiki.
\[John_B._Conway_-_
_Functions_of_One_Complex_Variable_II.pdf#page=284&offse
t=,..pdf\]](https://rupadarshiray.github.io/notes/wiki._John_B._Conway_-_Functions_of_One_Complex_Variable_II.pdf#page=284&offset=,..pdf))

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 - [1Hol](#) Holomorphic functions on spaces over \mathbb{C} of dimension 1
 - [space D](#) $\mathcal{O}(D)$

And it has 22 siblings.

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1. John B. Conway - Functions of One Complex Variable II, 20 Hardy Spaces on the Disk ↩