

Heinz Junek

On dual spaces of locally convex spaces defined by operator ideals

In: Zdeněk Frolík (ed.): Abstracta. 5th Winter School on Abstract Analysis.
Czechoslovak Academy of Sciences, Praha, 1977. pp. 37.

Persistent URL: <http://dml.cz/dmlcz/701086>

Terms of use:

© Institute of Mathematics of the Academy of Sciences of the Czech Republic,
1977

Institute of Mathematics of the Academy of Sciences of the Czech Republic
provides access to digitized documents strictly for personal use. Each copy of any
part of this document must contain these *Terms of use*.



This paper has been digitized, optimized for electronic delivery
and stamped with digital signature within the project *DML-CZ*:
The Czech Digital Mathematics Library <http://project.dml.cz>

FIFTH WINTER SCHOOL (1977)

ON DUAL SPACES OF LOCALLY CONVEX SPACES DEFINED BY OPERATOR IDEALS

by

H. JUNEK

There is a well known theorem proved by Grothendieck which states that the strong dual space of each nuclear metrizable locally convex space is also nuclear. If one replace the class \mathcal{N} of the nuclear operators used in the definition of the nuclear spaces by another ideal \mathcal{A} of linear bounded operators between Banach spaces then the resulting locally convex spaces are called \mathcal{A} -spaces (c.f./3/). Now, the question arises under which assumptions on \mathcal{A} a theorem like the called above one is true. There is the following result:

Theorem (c.f./2/). Let \mathcal{A} be an injective, symmetric, and complete metric ideal of operators, the topology of which is given by a countable increasing system $\{\alpha_n\}$ of quasinorms α_n . Then the strong dual of each metrizable \mathcal{A} -space is also an \mathcal{A} -space.

For the definitions used in this theorem see the references. This theorem can be used for nuclear, strongly nuclear, Schwartz-, infra-Schwartz- spaces and for numerous other classes of l.c.s. The theorem which can be found in /2/ is somewhat stronger.

References

- /1/ Jarchow, H.: Nuclear Locally Convex Spaces, Lecture Note 13, University of Maryland 1976.
- /2/ Junek, H.: On Dual Spaces of Locally Convex Spaces Defined by Operator Ideals (to appear).
- /3/ Pietsch, A.: Ideals of Operators on Banach Spaces and Nuclear Locally Convex Spaces, Proc.III.Symp.Gen.Topology, Prague 1971.