

**INEQUALITIES FOR  $C^*$ -VALUED NORMS ON A HILBERT  
 $C^*$ -MODULE**

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ABSTRACT. An  $A$ -valued norm is defined on a Hilbert  $C^*$ -module  $V$  over a commutative  $C^*$ -algebra  $A$  in terms of a standard inner product on  $V$ . We introduce a 2-inner product on  $V$  and define an  $A$ -valued 2-norm there. For both  $C^*$ -valued norms on  $V$  a number of inequalities (which are in fact order relations on  $A$ ) are given.