

Ann. Scuola Norm. Sup. Pisa Cl. Sci. (5)  
Vol. VII (2008), 455-482

## Singularities of Maxwell's system in non-Hilbertian Sobolev spaces

WIDED CHIKOUCHE AND SERGE NICAISE

**Abstract.** We study the regularity of the solution of the regularized electric Maxwell problem in a polygonal domain with data in  $L^p(\Omega)^2$ . Using a duality method, we prove a decomposition of the solution into a regular part in the non-Hilbertian Sobolev space  $W^{2,p}(\Omega)^2$  and an explicit singular one.

**Mathematics Subject Classification (2000):** 35A20 (primary); 35Q60, 78A25 (secondary).