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Sommario/riassunto	In the first part of this thesis we extend the theory of anisotropic Triebel-Lizorkin spaces to time-periodic functions. In particular, the spatial trace space is determined together with the existence of extension operators. Additionally, some results regarding pointwise multiplication are provided. As a preparation for this theory we prove a transference principle for multipliers with values in the spaces of summable sequences. Secondly, we consider the equations of magnetohydrodynamics with a background magnetic field and time-periodic forcing. Maximal regularity of the time-periodic linear problem is established by applying the results of the first part. The existence of a solution to the non-linear problem is shown for a large class of background magnetic fields via a fixed-point argument.