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**MOHAMMAD SHIRAZI**, University of Manitoba

*Grunsky and Faber Operators for Riemann Surfaces with One Border*

Consider a Riemann surface  $\Sigma$  of genus  $g > 0$  with one border  $\Gamma$  which can be described as a compact Riemann surface  $\mathcal{R}$  of the same genus  $g$ , from which a simply connected domain  $\Omega$  is removed. That is  $\Sigma = \mathcal{R} \setminus cl(\Omega)$ ,  $\partial\Omega = \Gamma$ . Let  $f$  be a conformal map from the unit disc  $\mathbb{D}$  to  $\Omega$ .

We aim to characterize the Dirichlet holomorphic space  $\mathcal{D}(\Sigma)$  and its boundary values on  $\Gamma$ , in terms of the Fourier series of the pull-back of  $\mathcal{D}(\Sigma)$  by  $f$ , by generalizing the classical *Faber* and *Grunsky* operators associated to  $f$  on planar domains to  $\mathcal{R}$ .

Joint work with E. Schippers and W. Staubach.