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**The Moduli Space of Rational Maps  
and Surjectivity of Multiplier Representation**

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**Abstract.** In this paper, we first show that the map  $\Psi_{\text{Rat}_n}$  of the moduli space of rational maps of degree  $n$  to  $\mathbb{C}^n$  obtained from multipliers at fixed points is always surjective, while the map  $\Psi_{\text{Poly}_n}$  of the moduli space of polynomials of degree  $n$  to  $\mathbb{C}^{n-1}$  defined similarly is never so if  $n \geq 4$ .

Next, in the latter case, we give a sufficient condition and a necessary one for points not in the image of  $\Psi_{\text{Poly}_n}$ , and give an explicit parametrization for all such points if  $n = 4$  or  $5$ . Also, we show that the preimage of a generic point by  $\Psi_{\text{Poly}_n}$  consists of  $(n - 2)!$  points.

**Keywords.** Rational maps, fixed points, multiplier, moduli space.

**2000 MSC.** Primary 30C10; Secondary 37C25.

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