Sharma, S. D.; **Sharma, Ajay K.**; **Ahmed, Shabir**

Composition operators between Hardy and Bloch-type spaces of the upper half-plane.
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Let $H^p(\pi^+)$ be the Hardy space of those functions f holomorphic on the upper half plane π^+ (say, $f \in H(\pi^+)$) for which

$$\|f\|_p^p = \sup_{y>0} \int_{-\infty}^{\infty} |f(x+iy)|^p dx < \infty.$$

The Bloch space $B_\infty(\pi^+)$ of the upper half-plane is the set of all $f \in H(\pi^+)$ satisfying $||f||_{B_\infty} = \sup_{z\in\pi^+} \text{ Im } z \; |f'(z)| < \infty$. Finally, a function $f \in H(\pi^+)$ is said to belong to $\mathcal{A}_\infty(\pi^+)$ if $\|f\|_{\mathcal{A}_\infty} = \sup_{z\in\pi^+} \operatorname{Im} z\,|f(z)| < \infty$. The authors give necessary and sufficient conditions on holomorphic selfmaps ϕ of π^+ in order the composition operators $C_\phi : f \mapsto f \circ \phi$ are bounded acting as operators on $\mathcal{A}_\infty(\pi^+)$, respectively, as operators between $H^p(\pi^+)$ and $\mathcal{A}_\infty(\pi^+)$ or $H^p(\pi^+)$ and $B_\infty(\pi^+)$.

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MSC:

47B33	Linear composition operators
46E10	Topological linear spaces of continuous, differentiable or analytic functions
30D55	H^p-classes (MSC2000)

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