

# Contents

<b>1. Introduction</b>	<b>1</b>
<b>2. BALs subject to matched optical feedback</b>	<b>7</b>
2.1. Model of matched optical feedback . . . . .	8
2.2. Experimental setup . . . . .	11
2.3. Laser structure . . . . .	13
2.4. Simulation of lateral emission characteristics of single-side emitting BALs . . . . .	16
2.4.1. Simulation tools . . . . .	17
2.4.2. Lateral-longitudinal temperature profile . . . . .	22
2.4.3. Impact of longitudinal temperature profile on lateral emission characteristics . . . . .	25
2.5. Tailoring longitudinal intensity and temperature profile . . . . .	30
2.5.1. Symmetric vs. asymmetric facet reflectivities . . . . .	30
2.5.2. Optical feedback by an actual coupled-cavity setup . . . . .	40
2.5.2.1. Symmetrizing longitudinal intensity profile by optical feedback . . . . .	43
2.5.2.2. Lateral intensity filamentation . . . . .	45
<b>3. BALs subject to spatially mismatched optical feedback</b>	<b>51</b>
3.1. Vertical displacement . . . . .	53
3.1.1. Experimental setup . . . . .	53
3.1.2. CO(M)D threshold and front-facet temperature . . . . .	56
3.1.3. Longitudinal origin of COD . . . . .	60
3.2. Lateral displacement . . . . .	63
<b>4. Conclusion</b>	<b>69</b>
<b>Appendices</b>	<b>71</b>

<b>A. Simulation parameters</b>	<b>73</b>
<b>Bibliography</b>	<b>77</b>
<b>Acknowledgments</b>	<b>91</b>