1. Femtoflap Retreatments
   A John Kanellopoulos (Greece)

2. I-Flap Replacement
   A John Kanellopoulos (Greece)

3. Intralase Corneal Incisions for High Astigmatism
   Mark Wevill (UK)

4. Femtosecond Refractive Cataract Surgery [No Voice Over]
   Eric D Donnenfeld (USA)

5. LASIK with Femtec
   C Banu Coser (Turkey)

6. Femtosecond Laser Flap [No Voice Over]
   Arun C Gulani (USA)

7. I-Presbylase [No Voice Over]
   Francisco Sanchez Leon (Mexico)

8. Corneal Lenticule Removal with Femtosecond Laser [No Voice Over]
   Bojan Pajic (Switzerland)

9. Lamellar Corneal with LDV Crystal Line Femtosecond Laser after Penetrating Keratoplasty [No Voice Over]
   Bojan Pajic (Switzerland)

10. Keraklear Inlay Keratoprosthesis in an Aniridia Keratopathy and Glaucoma Case
    A John Kanellopoulos (Greece)

11. Kamra Inlay for Presbyopia with Intralase Femtosecond Laser [No Voice Over]
    Francisco Sanchez Leon (Mexico)

12. Femto-assisted DALK
    A John Kanellopoulos (Greece)

13. Femto-assisted CXL
    A John Kanellopoulos (Greece)

14. Intralase-assisted Collagen Crosslinking
    A John Kanellopoulos (Greece)

15. Femto Recut
    A John Kanellopoulos (Greece)

    Francisco Sanchez Leon (Mexico)

17. Kamra Post-LASIK Simultaneous Enhancement and Femtosecond Laser Implantation [No Voice Over]
    Francisco Sanchez Leon (Mexico)

    Francisco Sanchez Leon (Mexico)

19. Keraring and Intralase Implantation for LASIK Ectasia
    Francisco Sanchez Leon (Mexico)

20. Advanced Isovision
    Frederic Hehn (France)

21. Intralase [No Voice Over]
    Mahipal S Sachdev (India)

22. Intacs [No Voice Over]
    Mahipal S Sachdev (India)

23. Femtosecond Laser Surgery with Sub 1 mm Incision
    Jorge I Alió (Spain)
| Contents |
|------------------|------------------|
| **Guest Editorial** | Femtosecond Laser—An Introduction .......................................................... xix |
| **Chapter 1** | Femtosecond Laser: Current Technology and Future Prospects ......................... 1 |
| Ashok Garg (India) | Future Prospects of Femtosecond Laser Technology  2 |
| **Chapter 2** | Femtosecond LASIK: Practical Pearls .............................................................. 4 |
| A John Kanellopoulos (Greece) | Intraoperative Issues (LASIKrefsuite11)  6 |
| | Hyperopic Femto-LASIK  8 |
| **Chapter 3** | The Benefits of Femtosecond Laser Applications .......................................... 19 |
| Mark Wevill (UK) | Femtosecond Lasik  19 |
| | Femtosecond Astigmatic Keratotomies  20 |
| | Intracor  21 |
| | Other Femtosecond Laser Applications  22 |
| **Chapter 4** | Femtosecond-assisted Keratoplasty Techniques ........................................... 24 |
| A John Kanellopoulos (Greece) | Lamellar keratoplasty  25 |
| | Keratoprosthesis  25 |
| | Video KeraKlear  25 |
| **Chapter 5** | Femtosecond Lasers in Ophthalmology .......................................................... 28 |
| Mahipal S Sachdev, Charu Khurana (India) | Steps of Femto-cataract/Blade-free Cataract Surgery  33 |
| **Chapter 6** | Corneal Crosslinking Treatment and Femtosecond Laser Pocket ..................... 34 |
| Aylin Kilic (Turkey), A John Kanellopoulos (Greece) | Video: iCXL KCN  34 |
| **Chapter 7** | Corneal Inlays for Presbyopia and Femtosecond Laser Implantation .............. 38 |
| Francisco Sanchez Leon (Mexico) | Synthetic Keratophakia History  39 |
| | Features and Surgical Technique  40 |
| | Acufocus Inlay Features  40 |
| | Surgical IntraLase Surgical Technique Step-by-Step  42 |
Inveu Inlay Features and Surgical Technique 43
The Presbylens™ Corneal Inlay: An Adjustable Device for Presbyopia 47
Results 50

**Chapter 8 Surgical Treatment of Keratoconus and LASIK Ectasia with Intrastromal Corneal Ring Segments (Keraring®) and Femtoseconds Laser Implantation** 52
Francisco Sanchez Leon (Mexico)
  Surgical Technique and Specifications 54
  Keraring Intralase Technique Image Animation 54
  Keraring IntraLase Procedure Step-by-Step 58
  Nomograms and Consultancy 58
  Keraring Specifications 61
  Set of Instruments 61
  Postoperative Care 62
  Custom Keraring and IntraLase Topographic and Refractive Examples 62
  Complications 62
  Keraring and IntraLase Conclusion: Orthopedic or Refractive Procedure 63

**Chapter 9 LASIK Flap Creation with FEMTEC** 69
C Banu Cosar (Turkey)
  Corneal Flap Creation with Femtosecond Laser Systems 69
  FS Laser Flap Complications 70
  FEMTEC 71

**Chapter 10 Advanced Isovision: Predictable Presbylasik** 72
Frederic Hehn (France)
  Methods 73
  Materials 73
  Results 75
  Discussion 76

**Chapter 11 The LensAR Laser SystemTM; The Technology for Femtosecond Laser Assisted Refractive Cataract Surgery and Presbyopia Reversal** 79
Carlo F Lovisolo, Eugenio Lipari (Italy)
  The LensAR System 82

**Chapter 12 Femtosecond-assisted Cataract Surgery** 90
Jorge L Alió, Roberto Fernandez-Buenaga (Spain)
  Differences among the Technologies 93

**Chapter 13 Lamellar Corneal Resection with LDV Crystal Line Femtosecond Laser after Penetrating Keratoplasty** 99
Bojan Pajic, Slobodanka Latinovic, Farhad Hafezi, Brigitte Pajic-Eggspuehler, Michael Mrochen, Joerg Muller, Franz Fankhauser (Switzerland)
  Physics and Technical Approach 99
  Minimizing Energy—Maximizing Cutting Precision 100
  Technical Realization and Clinical Outcomes 100
Chapter 14 Applanation-Free Femtosecond Laser Processing of the Cornea ................. 105
Bojan Pajic, Farhad Hafezi, Brigitte Pajic-Eggspuehler, Michael Mrochen, Joerg Muller, Dusan Pajic, Franz Fankhauser (Switzerland)

- The Femtosecond-Laser Surgery System 106
- Applanation-free Surgery 107
- Cut Quality and the fs-parameters 108
- Intrastromal lenticular Extraction 109

Chapter 15 Dry Senile Macular Degeneration ...............................................................111
Franz Fankhauser, Maria Ott, Bojan Pajic (Switzerland)

- Subjects 112
- Method 112
- Results 113
- Discussion 114
- Theory of Photon Correlation Spectroscopy 117
- Apparatus 118
- Eye Movements 120

Chapter 16 Analysis of the Vitreous of Diabetic Patients with Dynamic Light Scattering Spectroscopy: Solutions and Problems Related to Photon Correlation Spectroscopy .............................................................. 121
Franz Fankhauser, Bojan Pajic (Switzerland)

- Macromolecule Size and Shape 122
- Limits of the Model for Size of Particles 123
- Heterodyning 123
- Subjects 124
- Method 124
- Disturbances due to Eye Movements 125
- Results 125
- Discussion 127

Chapter 17 Femtosecond Laser Flap Complications ...................................................... 130
Aylin Kilic (Turkey)

- Flap Thickness 130
- Corneal Biomechanics and Ectasia 131
- Stromal Wound Healing and Inflammation 131
- Opaque Bubble Layer 132
- Gas Bubbles Anterior Chamber 132
- Vertical Gas Breakthrough 133
- Transient Light-Sensitivity Syndrome 133
- Rainbow Glare 134
- Dry Eye 134
- Corneal Abberation Changes 134
- Flap Centralization 135
Chapter 18 Femtosecond Laser Astigmatic Incisions ................................................................. 138
Eric D Donnenfeld, Allon Barsan (USA)
Limbal Relaxing Incisions (LRI) Nomograms 138

Chapter 19 An Update on Femtosecond Laser Refractive Surgery ........................................ 145
Sharad Lakhotia (India)
Technology 145
Complication 147
Astigmatism Correction 147
Presbyopia Correction 147
INTRACOR Procedure 147
All Femtosecond Refractive Correction 147
Complications 148
Intralase FS laser 149
Step-by-Step Intralase Flap Creation 150
Suction Loss within Raster Pattern 150
Flap Complications 151

Chapter 20 Femtosecond Lasers in Cataract Surgery: Designer Cataract Surgery ........... 152
Arun C Gulani, Ming X Wang (USA)
Gulani “Cataract Category Classification” 152

Chapter 21 Femtosecond Laser for Astigmatism Correction During Cataract Surgery ...... 155
Eric D Donnenfeld, Arun C Gulani (USA)
Gulani “Cataract Category Classification” 155
Femtosecond Laser Astigmatic Incisions in Cataracts 156

Chapter 22 Femtosecond Laser in Ophthalmology-Past, Present and Future ................. 162
Arun C Gulani, Ming X Wang (USA)
Femtosecond Laser Applications 162

Chapter 23 Presbyopia Treatment Using the IntraLase Femtosecond Laser 165
Francisco Sanchez Leon, Jaime Martiz (Mexico)
Study Results 167

Index ........................................................................................................................................ 169